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PREPARATION OF LANGUAGE TEACHING TAPES

PRACTICAL ASPECTS

MICHAEL DOBBYN

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CENTRAL INSTITUTE OF INDIAN LANGUAGES
MANASAGANGOTRI, MYSORE-6, INDIA

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FOREWORD

The Central Institute of Indian Languages was set up on the 17th July 1969 with a view to assisting and coordinating the development of Indian languages. The Institute was charged with the responsibility of serving as a nucleus to bring together all the research and literary out-put from the various linguistic streams to a common head and narrowing the gap between basic research and developmental research in the fields of languages and linguistics in India.

The Institute and its four regional centres are thus engaged in research and teaching which leads to the publication of a wide-ranging variety of materials. Materials designed for teaching/learning at different levels and suited to specific needs is one of the major areas of interest in its series of publication. Basic research relating to the acquisition of language and study of language in its manifold psycho-social relations constitute another broad range of its interest. These materials will include materials produced by the members of the staff of the CIIL and its Regional Centres and associated scholars from universities and institutions both Indian and foreign.

D. P. PATTANAYAK

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Dr. Michael Dobbyn worked for the Central Institute of Indian Languages during May–July, 1970.

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* * * * *

This book is a sequel to the course of lectures given by Dr. Dobbyn at the Summer School of Linguistics, jointly organised by the University of Mysore, the Central Institute of Indian Languages, and the Linguistic Society of India, at Mysore in May–June 1970. Our thanks are due to the University Grants Commission who gave a generous grant for conducting the School and also permitted us to bring out this publication from out of the grant funds.

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1. INTRODUCTION

1.1. Purpose

It is the purpose of this modest little booklet to help the reader make good, or better, tape recordings. Obviously, techniques and standards will vary according to what is to be recorded, whether it is a bird-song or a political speech. We will therefore limit ourselves to recordings of the human voice for such purposes as linguistic study, language pedagogy, language laboratory and radio broadcast lessons, the pre-recording of a lecture, and the like.

Unfortunately it is not possible to restrict our observations to the actual process of making the tape. Many of the troubles and most of the disasters arise either before entering the studio, or after leaving it. Backstopping, therefore, in terms of both preparation and responsible follow-up, will receive considerable attention in what follows.

It is not the purpose of this study to teach how to teach or how to conduct field work, except in so far as the actual making of the tape is concerned. These subjects have been amply treated elsewhere. (See bibliography).

1.2. Presentation

The presentation has been kept as simple as possible. Technical terms appear only where there is no convenient word in common use. This way of going about things may reveal the essential naïveté of the author, but he would rather the reader had such a revelation painlessly than that he should have to work for it. As somebody once said, 'The bigger the terminology, the fewer the ideas'.

The presentation is also intended to be purely practical. The advice given is based on actual experience and directed towards those who will have to make recordings rather than discuss how recordings should be made. That is not to say there is no theoretical underpinning: it simply has not been stated.

1.3. Assumptions

The following are assumed:

(1) The reader knows how to handle the particular tape-recorder he is working with. This may seem a big assumption, but it must be made. Hardly any two models have the controls in the same place. So, no general description of operation can be written. Even if it could, it should not. A set of written instructions is no way to teach a simple manual skill, or at best a low grade psycho-motor skill, like threading a tape and pushing the right keys. If the reader is not able to handle his equipment, let him learn from someone who is, or from solitary trial and error, guided by the manufacturer's handbook.

(2) The reader has the necessary academic background in Linguistics, Language Teaching Methods, or whatever is appropriate to the job he is doing with the tape-recorder.

(3) The reader has, or is prepared to acquire, simple 'household' electrical skills like undoing nuts, replacing a fuse, joining two pieces of wire, fitting a plug to the end of a two-strand power cable. A technician may be called in for big troubles but the days when we can expect him to be always on hand are fast vanishing. No knowledge of electrical theory or circuitry is expected.

(4) The reader has, or will fight for, a realistic budget allocation for maintenance of equipment and purchase of small incidentals. 5 per cent of the purchase plus installation costs of equipment is usually a realistic figure for its annual maintenance, excluding tape purchase. More important than the money is the cost in time. It is assumed that the reader is prepared to put in the very considerable amount of time needed to turn out a good recording. Figures on this appear later. (3.2.1.)

2. GENERAL GUIDELINES

2.1. Sequence of Operations

It is common, and deplorable, practice to wait until the first pieces of equipment arrive before doing anything in a tape preparation programme. We may sympathize with the illiterate artisan who, until he has the hammer or spade in his hand, cannot begin to plan out his work, but we should not imitate him. It is sheer optimism to believe that once the tape recorders have arrived, thinking ahead will become easier. Indeed, the arrival of the equipment will only confront us with a number of extra problems which are difficult to solve at short notice. Let us therefore see what should be done before the hardware appears.

2.2. First Things First

Quite apart from whether field work is under consideration, some sort of *studio*, however simple, must be constructed. Details are given under (4.2.), below. The more time we have for the construction the cheaper we can do it and the better it will probably be. Either in the studio, or preferably separate from it, some *storage space*, suitably free from dust, with shielding, grounding and shelving must be provided for the tapes and equipment (7.1.). Also, some kind of *work-bench* with power leads must be constructed for tape-dubbing (making copies), editing, repairs, and maintenance. This should be outside the studio (7.2., 7.3., and 7.4.). *Two card indexes* and one *filing cabinet* should be obtained, and a set of printed cards and mimeographed file forms, before the first script is written or the first master tape made. A more intractable problem, and one which in many places requires some time to solve is the question of how to provide a reasonably *constant voltage supply*. The choice between a (costly) automatic constant voltage transformer, and a (cheaper, but in some situations dangerous) manual regulator, usually can be made after a few weeks observation of voltage fluctuation in the building. (4.2.2.).

On the human, side contact must be established with some *technician* (3.1.) who can be relied upon to undertake the initial installations and to come to the rescue for serious repair work. We cannot expect to have a full- or even part-time person for a small project, but a modest maintenance contract, once concluded, will establish a relationship of responsibility and interest which will repay its cost many times over the years when unforeseen disasters strike.

Again, it is most important that some *one* person be put in charge of the whole recording studio complex (3.2.). This post can be filled on a rotating basis each year by different academic staff members, but one person at a time is a necessity. Tapes, like library books, run to chaos with astounding alacrity. No library can survive the uncoordinated efforts of a group of users. How much less can tapes, which are inscrutable in title, unskimmable in content, and erasable by nature.

The half dozen steps mentioned above, if taken well before the appearance of equipment, will prove worth the trouble. They will have to be taken eventually.

If a language laboratory is involved, a great deal more advance preparation must be undertaken. But this is a separate matter. Moreover the extent and nature of the preparation required will depend on the type of lab-fixed posts, portable units, with or without console—to be installed. Pre-arrival preparation specifically for a language laboratory must be discussed elsewhere.

2.3. When the Equipment Arrives

This is one time when the qualified technician is indispensable. He, and not someone else, should unpack the items and check them for breakage. He should be given plenty of time to discover their operation and potential. He should then teach these things to the academic staff-member mentioned in (2.2.) above, whom for convenience we may call Recording Unit Director, and then leave the latter in peace for a few days to 'play' with the equipment. It is impossible to overemphasis that the operation of audio-equipment at this level is a skill as much as a cognitive process. No amount of listening to explanations, reading of manuals, or conversations about equipment can ever substitute for a few days spent actually recording, erasing, playing-back, splicing, and so on. Only by performing these operations in person, in leisure, and solitude does one learn to perform them with ease, speed, and accuracy in the stress of a recording session. The Recording Unit Director, having learnt himself, should now help develop the same skills in his colleagues. The cost, except in time, is nil.

He has other concerns, however, of equal importance. The whole procedure for tape indexing, script filing and, in the favourite phrase of today 'information storage and retrieval' must be set up (7.5.) at this stage, not day by day as recording proceeds. It is now that every spool, whether blank, recorded, or empty, must be numbered and cross-indexed. A lost book is indeed a needle in a haystack, but at least one can recognize a needle on sight. An unindexed tape is gone for ever.

2.4. Preparation of Materials

This phase of the operation should at least have been started before the equipment arrives, but, since it is a continuing process it can be discussed here. By 'materials' we mean tapescripts and the accompanying diagrams, worksheets and other aids which are needed in order to make and use the tape. Where field work is concerned particularly in the collection of a corpus, a sample of a dialect or an interview, a 'script' in the ordinary sense will not usually be appropriate, though an outline of procedure and an item list will be dictated by the nature of the project involved. What follows refers to materials for the studio and classroom.

The preparation of a good lesson tapescript is a very time-consuming affair. One procedure has been described in detail elsewhere.[1] Is it necessary? Once the drills have been prepared, it is tempting for the readers simply to renearse what they are going to do, and then go into the studio and do it. The methodology is fresh in their minds and if, during the recording session, they forget who was meant to say what, or just how the instructions were to be given to the student, the readers can halt, confer, erase if need be, and then continue.

This course of action saves time and allows for on-the-spot inspirations. However, it is disasterous in the long run. If, for example, the recording is ever or damaged erased there is virtually no way of remaking it. The original readers may have moved on, or forgotten what exactly they did. The drills will have to be reassembled. Possibly worse, there is no way a lesson can be circulated before recording for criticism and no easy way afterwards. It is therefore, essential that a full script be prepared in which every word which is to be recorded on the tape appears, clearly assigned to a speaker, and in which full directions about pauses, pacing, and, where necessary, phonetic transcriptions, are given. Samples are given in the appendix.

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[1] Michael Dobbyn, *Preparation of Materials for the Language Laboratory*, New Delhi: National Institute of Education, 1965.

Thus, the time-consuming operation of script writing will prove necessary. We might note, in passing, that in spite of popular superstition and democratic practice to the contrary, a script cannot be written by a committee. One person must have charge of from start to finish. Of course, it need not be the same one person who writes all the scripts and equally obviously there must be committee sessions to assure a uniform approach, symbol conventions, and an integrated syllabus of materials. Details appear in (5.) below. The point at issue here is that before the studio is entered a script is written. Before a script is written a materials preparation programme must be set up with the usual paraphernalia of progress chartsassignments and deadlines, and *before that, there must be an ongoing teaching programme which will generate the basic materials for the tapes.* A tape recorder will not produce a good teaching programme, but a good programme may end up with or in a fine tape.

2.5. Recording Sessions

A rule of thumb calculation is that for a twenty minute tape at least an hour of studio time is required. With the best script and the best will in the world the readers make mistakes, and even when the—hopefully perfect—twenty minute recording is completed, it must be played right through once (a further twenty minutes) to see than no gross errors have gone unnoticed. During this time the readers must remain in case they are needed for corrections.

The result is often an overworked studio. Four twenty minute recordings are probably the maximum that can be undertaken in one day, and that much will be possible only if the workbench where editing and coping are done is elsewhere.

Some kind of studio booking schedule will be needed. A calendar diary hanging on the outside of the studio door is enough. The lesson producers simply sign up for the times they want, and they should also have the courtesy to erase their names if their lessons will not be ready on time.

Different designs for the studio are given later. Costs, however, will usually restrict the size. It is therefore advisable to have only the readers and the 'conductor' (usually the script writer) in the studio during the session.

Unless a really first class technician with a good ear for language phenomena can be found it is almost always better for the conductor to operate the tape recorder himself. Granted that a few more clicks and, at worst, a very faint background hum, may result from having the tape recorder actually in the studio, the freedom of action and the saving of time will be ample compensation. The 'professional' studio, found in radio stations, with the technician and apparatus outside the studio, and the readers, like fish in a tank, communicating with him by gesticulations through a double glass window, is frustrating and, moreover, inefficient. The essential difference between, say, an actor in a radio play, and a phonetician making a teaching tape, is that in the latter case the reader not be technician, is the ultimate judge of the quality of the production. He therefore wants instant replay available at any moment. And he wants it right there in the studio, not outside where the apparatus is located.

If, for some reason, a technician is asked to operate the equipment, then, for the above reasons, he too should be in the studio.

2.6. Use of the Tape

The minute the tape has been recorded, the full details (7.5) should be entered, the tape checked that it has the identifying marks of a master tape, and from that moment on it should never leave the studio complex. With reasonable care a copy should be indistinguishable from its master. The copy is quick to make and costs nothing, for it is erasable. Only the master 'use up' tape stocks.

Common practice among many academic institutions is to provide each other with free copies of whatever materials they have, in return for a blank tape of the right size.

3. STAFF

3.1. Technical Staff

We may distinguish three levels of technical support for audio equipment: the manufacturer and his agents, the qualified technician, and the 'handyman'. It is important to know which should be appealed to at any particular moment.

3.1.1. The Manufacturer

Usually he will be distant and inaccessible. Except where the small quantity of locally manufactured equipment is concerned, the most we can hope for is an agent who will arrange for the replacement of defective parts, once the defective part is identified (by the technician or handyman below). Notable exceptions are *Philips* (India) who maintain service teams in several parts of the country including Bangalore, *Sony* (through *Photophone*, New Delhi) and *Akai* (Bombay).

In the case of large installations, such as the *Cybervox* series of Language Laboratories, the manufacturer, though distant, will often send his man, an international engineer, to supervise the initial installation. The engineers of these companies are highly mobile and can often be subsequently diverted while on one of their round-the-world trips, to cope with serious trouble in installations made by their firms at earlier dates. The manufacturers prefer this course of action to having the (faulty) equipment packed up and returned to the U.S., or U.K. for repair, only to be shipped back to India, and possibly damaged yet again in transit.

3.1.2. The Qualified Technician

Ideally a full time qualified technician should be on hand at all times.

(*a*) He should have 'a good ear' above all else. No amount of skill in electronics will compensate for a basic inability to distinguish between a poor and a good recording. He must, moreover, know in what *acoustic* way the recording is defective.

(*b*) He should have a Diploma in Sound Engineering. This will ensure, if it is from a reputable institution, that he knows enough basic circuitry, both tube and solid state, to analyze and maintain the many pieces of equipment which he may meet which will almost certainly be strange to him, e.g. the segmentators, synthesizers, transpitchmeters, and other impedimenta of the Phonetics, as well as the Language Laboratory.

(*c*) He should have experience and proven ability in repair of at least tape-recorders, intercom equipment, and hopefully AM broadcast and reception equipment. Experience with FM will be useful in the coming years. A wider general experience with projection, photographic, and other reprographic equipment will also be extremely useful.

The above is the ideal. The appointment of a whole-time, qualified technician for each centre where recordings are to be made, is financially difficult and administratively impossible to justify. There will be plenty of work for such a person during the early months of installation of equipment and familiarization of non-technical staff. The full-time technician can also be fully employed during the setting up of new experimental procedures, but for the rest of the year he will be, at the most, half employed in many institutions. However, like the medical practitioner, when he is needed, he is needed. The best course will usually be either to share such a person between, say, four nearby institutes, or, if this proves impracticable, to enter into a service contract with a local radio repair shop for a weekly maintenance visit, and to pay a retainer fee for emergency repairs. Hopefully the former will diminish the necessity for the latter, but it will never dissolve it utterly until equipment becomes fool-proof, a day to be dreaded by the manufacturer.

3.1.3. The Handyman

There are at least two language laboratories of considerable complexity in India where 95 per cent of all maintenance and repairs are carried out by people who are, on paper, totally unqualified. In one case it is a peon. In the other an LDC. In several others it is a member of the academic staff who, when the tape recorder refuses to rewind, opens it up and replaces the drive belt, or taps the relays gently, or replaces a fuse, or extracts the yard of twisted tape which the last user managed to suck into the capstan. All of these operations are quite simple, and require little more than informed common-sense, but most teachers are unwilling to learn them and even perhaps consider them somewhat undignified. Yet some handyman there must be, unless repair procedures are to become time-consuming and disruptive. Unfortunately an institute cannot recruit specifically such a person. Nor, perhaps, is it possible to 'develop' such a person consciously from among the existing staff. We can only hope that he will appear, and give every encouragement to anyone who seems headed that way.

3.2. Academic Staff

No rule of thumb is possible here. The number and type of academic colleagues required for any project will depend on what the project is. However, it may be in order to make a few observations about minimum needs in certain areas.

As suggested (2.2.) some one person should be put in charge of the whole recording studio complex. His need not be a full-time job unless there is a specially heavy load on the studio, and even then it will be more of a coordinator's role. Besides him, staff will be needed for materials production and for monitoring.

3.2.1. Materials Production Staff

If even a modest programme of materials preparation is envisaged a considerable amount of academic staff time will be needed. For a rough guide we may estimate one man-week per half-hour tape to be completed. That is to say, it will take one person, working full-time (or two working half-time, or a similar permutation) a week to conceive, draft, script, record, edit, and make copies of one lesson, together with whatever supplementary printed materials are required for its classroom or laboratory use.

This figure may seem high, but it is well documented. The NIE language laboratory in New Delhi, with a full-time staff of three, produced taped lessons at the rate of about two a week during 1966 and 1967. The English-by-Radio staff working with A.I.R. during the same period was larger but worked only proportionately faster. The lessons produced for the laboratory of the Central Institute of English, Hyderabad during 1967-1969, made by two part-time academic staff and one part-time technician also emerged at the rate of about one a week.

Thus, a typical 50-unit set of tapes, will require the undivided attention of a man for a year or, much more practical, two people for six months. It is as well to bear this figure in mind when planning staff activities.

The above calculation is, of course, for the production of self-contained lessons in an internally integrated course. If the basic teaching is to be given by some other medium, a textbook-plus-teacher approach in a conventional classroom, and if the taped material is to be no more than an adjoint to the class sessions, repeating drills already designed by others for class use, much faster progress can be expected, but then we are talking about something quite different, the production of practice tapes, not teaching tapes.

3.2.2. Monitoring Staff

The old adage, 'Practice makes perfect', is only a half truth. If the wrong pronunciation, or the wrong syntactic pattern is repeated over and over again without correction, the incorrect form will be learnt with equal thoroughness. 'Practice makes permanent', would be better. For this reason many teachers would agree that, except for the minority who can pick up their own mistakes, students should not be encouraged to undertake unsupervised oral drills. In terms of the use of language teaching tapes, whether in the laboratory or on a conventional tape-recorder, this means that whenever students are at work they should be monitored.

If the language teaching tapes are simply to be played in conventional class room settings so as to provide a better model than the live teacher may be able to produce, the number of students in the class will not effect the time the teacher must spend with them. Typically, the tape will be used to give the model, and then whole class will repeat it together. Whether five, fifteen, or fifty students are making the choral response, the time taken will be the same. The only thing that will increase is the chance of a mistake passing undetected as the number grows.

Where the tapes are to be used in Language Laboratories, however, we must make a different kind of calculation. Even given a student body of fixed size, there remains another variable, the size of the laboratory itself. The smaller the laboratory the more expensive it will be in terms of monitors' time.

To take a concrete example. If a Language Center has four classes of twenty students, and each class is studying a different language or a different level of the same language, then for each student to spend one hour a day in the laboratory 4 × 20 × 6 booth-hours of laboratory time must be available, = 480 booth hours/week. Allowing for equipment failure we may estimate 500 booth hours. A laboratory with 50 booths could provide this in ten hours. One with 20 would need to operate for 25 hours, and one with ten would have to operate for 50 hours, or virtually full time all day, every day to produce the same result. To the transistors and relays these figures make some, but not much, difference. But to the academic staff the difference is enormous. The 50 booth lab is a mere part-time duty for one monitor. The ten booth lab is a full-time job for two.

3.3. Staff Summary

As a first estimate for the needs of a moderately busy teaching and materials preparation programme we might reckon on the following:

Technical Staff

Part-time: One afternoon per week: Qualified electronics technician by service contract.
Two hours per day: 'handyman'.

Academic Staff

Part-time: Studio Director.

Full-time: Two persons per 50 unit course per 6 months.
One monitor per 20 hours of laboratory operation.
Field work staff according to projects.

4. BASIC EQUIPMENT

4.1. Purpose

A detailed review of the various components, the different models available, and a balancing of costs against performance is obviously impossible here. Luckily there are several sources of such information.[1] The following section is intended simply to list the minimum necessary equipment and in passing, to give a little cautionary advice to help the reader avoid some of the more common pitfalls in the choice of components and the construction of facilities for their use.

4.1. The Tape-Recorder

For our purposes the tape-recorder will be the central component of any system we devise. It is true that magnetic tape recordings are no longer in favour in many language archives. Both the British Broadcasting Corporation, and the Phonetics Departments of several European Universities now prefer disc recordings on metal blanks as more permanent, not subject to erasure by magnetic and electrical fields such as accompany lightning storms, and, above all, incapable of stretching and print-through. However, even if eventually a more permanent result is desired than a magnetic tape can provide, we will almost certainly use a tape-recorder to obtain the initial recording.

4.1.1. 'Domestic'/'Professional' Equipment

The terms, and the distinction they imply between 'for pleasure' and 'for business', are largely the invention of the manufacturers and their publicity agents. In fact there is a continuous gradation of price and quality from the worst toy that will squawk 'Mama' to the finest single track console with three motors and three heads. Moreover the price and complexity are, in the higher ranges, seldom proportionate to the increase in quality obtained. Most Institutes involved in the preparation of language tapes will use high quality 'domestic' equipment. It will, hopefully, be of the sturdier kind: the Ferrograph series, for example, are so heavy and well boxed that there is no temptation to move them about except in real necessity.

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[1] A. S. Hayes, *Language Laboratory Facilities: Technical Guide for the Selection, Purchase, Use, and Maintenance* OE-21204 Bulletin No. 37. Washington, D.C.: U.S. Government Printing Office, 1963.

See also annual *Price List* of the EFVA and *Equipment for Audio-Visual Aids Survey 1969*. Both published by the National Audio-Visual Aids Centre, 254 Belsize Road, London, N.W. 6.

One useful feature to be sought in choosing a tape recorder is that it should have separate record and playback heads. This facility enables the operator to listen to the tape as he is making it, or, to be accurate, a fraction of a second later. Such an arrangement is a vast improvement on the single head models which allow the operator to monitor only the input, i.e. the sounds which *should* be going onto the tape. If through a wrongly threaded tape, or other minor error, no recording or a poor quality recording is taking place, the dual-purpose head tape recorder will not reveal the sorry truth until the whole tape is completed and the operator tries to play it back.

4.1.2. Studio/Portable Equipment

There is no intrinsic reason why a small portable tape-recorder should not produce as good a tape as a large studio model, except that, as in clock making, the greater the degree of miniaturization the more exacting the standards of accuracy will be. We must, of course, distinguish straight away between the recording and the playback qualities. The small speakers included in most portable tape-recorders will never give the faithful reproduction to be obtained from larger equipment. We should not, however, from the 'tinny' sound of the small speaker, conclude that we have a 'tinny' tape. Recent tests, for example, with the *Philips EL 3302* cartridge loading, transistorized and battery-powered (therefore extremely lightweight and portable) recorder show that it can make recordings equal in quality to those produced by some of the most sophisticated and expensive 'professional' equipment.

One caution however: for editing, i.e. cutting, splicing, copying, and the like, the small portable models are little use. Only the larger tape-decks give ready access to the tape for these and similar operations which will be described in (7.2.) and (7.3.) below.

4.1.3. Speeds and Tracks: Mono and Stereo

There are four speeds in common use today. The figures refer, of course, to the speed at which the tape passes through the heads, i.e. is 'used up'.

The speeds are:

4.75 cms (1.7/8 inches) per second: the 'slow' speed
9.50 cms (3.3/4 inches) per second: the 'medium' speed
19.00 cms (7.1/2 inchcs) per second: the 'fast' speed
38.00 cms (15 inches) per second: the 'high' speed

Most tape-recorders for field use have either the slow or the medium, or both slow and medium speeds. The saving in tape at slower speeds will be obvious. A 600 foot tape, probably the largest size a field recorder can hold, takes an hour to pass through the machine at the slow speed and only about eight minutes at the 'high' speed.

Although the slow speed is economical it makes greater demands on the precision of the equipment. A momentary fluctuation will be more obvious on a recording made at the slow speed than in one made at a higher speed. When, as in the studio, economy of tape is not a prime concern, the medium and fast speeds are usually chosen. Consequently it will be helpful to have among the studio recorders at least one which can play tapes at the slow speed. On this recordings made in the field may be played back, edited, and copied in the studio.

The high speed will probably not be used by the average language institute except for work in acoustic phonetics, an area outside the scope of this paper.

There is confusion in the terminology about tracks. We might as well clear it up here. A *quarter track* machine is able to make four separate and different recordings on one piece of tape, two on one side and two on the other. A *half track* machine can make only two recordings on the same piece of tape, one on each side. The terms 'two track' and 'four track' are the sources of confusion, and they are well avoided.

Obviously a quarter track machine will make a 50 per cent reduction in tape costs over a half track one. Equally obviously a quarter track will not be as impervious to damage, spooty tape, and general wear and tear as a half track one will be. Again, a half track recording can easily be played on a quarter track tape recorder, but a fully recorded quarter track tape cannot be played on a half-track machine. For this and other reasons most of the agencies which run tape libraries, like the information services of foreign embassies, have all their recordings on half tracks. For our purposes, however, it should be possible to have a tape recorder of each kind available. Indeed, if the preparation of language laboratory tapes is envisaged, a quarter track recorder will be extremely useful.

Stereophonic tape recorders, i.e. those which play two different tracks simultaneously through two separate speakers, are of no practical use in the making of language tapes. True, many types of language laboratory employ the stereophonic tape decks so that the student may play back both the master track (containing the model) and the student track (on which are his own efforts) simultaneously, but there is no stage in this process where a stereophonic recording has to be made by the monitor or studio technician.

4.2. The Studio

Nothing ambitious is implied by the term 'Studio'. It means simply the place where recordings are habitually made. It may be no more than the corner of the classroom or office, or it may and should be something a little more practical. On a small budget we can still hope for a small room, or a partitioned-off section of a bigger room, set aside for the purpose of making tapes. Without this provision, satisfactory results are unlikely. The three purposes of a studio are to cut down the noise, to provide stable conditions and to discourage interruptions.

4.2.1. Noise

Noise comes from outside the studio and from within it.

4.2.1.1. External Noise

External noise is the most intractable. The passing jet plane, the cries of children, the train whistle often appear faithfully recorded on the tape as clearly as the voice of the speaker in the studio.

Real soundproofing is an extremely expensive business and brings with it many other problems, notably how to keep an even climate in the soundproofed room. If money is available for the purpose, one good method of partial soundproofing is to brick up any external windows in the room, apply a layer, approximately, 3 cms thick, of glass wool loosely packed, and cover this with a soft composition board such as *Jollytex*. Needless to say the ceiling and the door into the studio must receive the same treatment. If a window into, say, a corridor or other room is demanded, then it should be small, double-glazed, and with the two panes not parallel to each other. One layer of carpeting on the floor will be adequate unless the room is on an upper floor when two will do something, though not much, to cut down transmitted noise from below.

Even these, quite elaborate, measures do not constitute full soundproofing. Any vibrations occasioned by construction work on the building will still come through. However, they will screen out almost all the external noise and, if the studio is near an airport or factory, or quarry the above precautions must be taken.

4.2.1.2. Ambient Noise

Given a fairly quiet neighbourhood, or willingness on the part of the staff to burn the midnight oil in the quest for silence rather than knowledge, it will usually be enough to choose a room or space in the middle of the building or without an external window and treat it so as to cut down 'ambient noise', the echoes of sounds produced within the studio itself. These include, of course, echoes of the matter to be taped as well as the scrape of feet, the rustle of clothes and the turning of scripts. The need for proofing against ambient noise grows as the number of people using the studio grows. It therefore follows that in a language laboratory where anything from ten to forty people may be working and talking at once, the need for cutting down ambient noise is imperative.

Smooth, hard surfaces reflect sounds best. Our aim should be to produce fairly dead recordings, voices without echoes. One method is to hang the whole interior of the studio with coarse, open-weave, cloth, such as sacking, or better, since sacking generates irritating dust, soft cotton cloth. Whichever is used it should hang in folds, not tightly in panels. A similar treatment of the ceiling, though difficult, is advisable. Failing cloth, the material used by egg-packers to separate the layers of eggs may be fixed to the walls and ceiling. It is available in sheets approximately 50 cms square, made of papier mâché and resembling a miniature landscape of alternating volcanoes and craters. Any form of soft covering on the floor will help reduce ambient noise. The thickness of the material has little to do with the reflection of ambient, as opposed to transmitted noise.

There is also the problem of vibrations picked up by direct transmission to the microphone itself. A microphone suspended from a boom or from the ceiling is less susceptible than one on a table, which may be kicked or touched by the readers. If a table is used to support the microphone then the tape-recorder itself must be on a separate table, or on a chair. The microphone and preferably the tape recorder too, should stand on thick rubber or cork mats. Placing the tape-recorder on a chair or stool, i.e. lower than the microphone, has two additional advantages: the tape-recorder can be screened more easily from the microphone, and it will be at the most comfortable level for operation by a seated man.

Again, if a table is the focus the studio—and many experienced studio directors believe that it should not be—it is essential that it be a round one, or at least square rather than oblong, so that the readers may also be equidistant from each other and the microphone. It is also advisable that the readers be provided with a set of cardboard backings to which the pages of their script for each recording can be temporarily clipped. Then, instead of turning pages, with the inevitable bumping of the table and rustling of paper, they need only put down one board and pick up the next.

4.2.2. Stable Conditions

If all access to outside air is cut off during recording sessions the atmosphere of the studio is likely to deteriorate. Short of an air-conditioner not much can be done. Even if an air-conditioner is used, it must be turned off while the microphone is live or a hum will be picked up. Table fans cause the same problem though, if well placed, to a lesser degree, and ceiling fans, though quieter, produce a more devastating effect still: the current of air which they pass across the microphone produces an extraordinarily loud noise rather like that of a railway train letting off steam.

Only two forms of relief from heat are known to the present writer. The first is to record in short, sweltering, sessions and between them blow the studio through. The other is to buy several blocks of commercially prepared ice and stand them in front of a quiet, slowly turning table fan pointing away from the microphone.

The smaller the studio the quicker it will heat up, and cool down. For most purposes a room three metres (10 feet) square will suffice.

Most tape-recorders, particularly the transistorized ones, and their accessories are little effected by the climate changes which disturb humans, but they are very sensitive to voltage fluctuation. Variations of as much as 25 per cent, i.e. between 180 volts and 230 volts occur in many places and almost all tape-recorders will run at different speeds at the two extremes. Even smaller fluctuations, however, effect many models. The only way to ascertain the effects of local fluctuations is to try. This may be done by leaving the tape-recorder set up in the studio with a tuning fork, whistle, or small bell next to it. At intervals during the day, perhaps a dozen times, the recorder should be turned on and a recording made of the tuning fork. The procedure should be repeated, but less frequently perhaps, each day for a week. We will then have several dozen recordings of the same note. If, when the tape is now played back there is no discernible variation in the pitch either there has been no voltage fluctuation or the tape-recorder has been able to survive it without loss of fidelity. If on the other hand there is considerable variation of pitch, a whole tone or more in the 256 cps range, steps must be taken to provide the studio with a stable voltage at least during recording sessions. The simplest solution is to purchase a manually operated voltage regulator with a capacity of about 500 watts. An automatic voltage regulator will do the job with less danger that sudden peaking will damage the equipment, but it costs about five times as much.

4.2.3. Interruptions

The studio should be provided with a prominently placed light which comes on when a bell-push outside is pressed. Without this simple precaution it is hard to prevent people from knocking on the door: they have no other way of attracting attention. A 'recording in progress' sign is an obvious necessity.

4.3. Field Work

Field equipment should be rugged and portable. The ruggedness is more important than the portability. In fact none of the three likely tape-recorders is for field use. The *Nagara PHO*, the *Uher 4000* or the *Philips EL 3302* is small enough to slip in the pocket, or robust enough to be taken on a field trip without the protective case. Moreover the accessories which go with them are often larger than the basic component itself.

A thorough pre-expeditionary familiarization with the equipment is the best insurance of successful field work with it. The present chapter is no place to discuss detailed operation of each model of field tape-recorder. There is no substitute for practical demonstration and personal experience under the guidance of the technician.

A number of tips for successful operation apply to one model only. For example the *Uher 4000* has an extra slow speed (15/16 inches per second) which is fine for syntactic studies but not for phonetic ones: the frequency range is only 40-4500 c/s. However, only with fully charged batteries should it be used for even syntax, because speed constancy falls off with voltage at the slow speed. The standard microphone supplied with the *Philips 3302* has a tendency to pick up light breezes, and it records a puffing sound if moved rapidly from informant to researcher and back again. The defect can be rectified by tying a handkerchief round the top of the mike. Again it has no mixing facilities while the *Uher* and *Nagara* do. Thus only one microphone can be used with it. The *Uher* and *Nagara* enable the researcher and the informant to have separate microphones, a great advantage when the volume level of the two voices varies greatly. Cassette models break the tape less frequently than spool models, but a break in a cassette tape is hard to repair in the field. To the field worker the tape-recorder is a faithful friend and companion. But each model is different and, as always in this life, one must learn by personal experience how to live with ones particular choice.

Thus the essential 'Doctor's Bag' of maintenance and supporting items will vary from machine to machine. It should certainly contain, as a minimum, a *Bib* or *Gibson Girl* splicer, coloured sticker sections for marking the place on a spool of tape, a defluxer, head cleaner and fluid, leader, timing and splicing tape. A couple of large umbrellas will also be useful. By opening them out and placing them with their handles together and the two concave surfaces facing the speaker, some makeshift protection can be given not only from wind and rain, but also, if a blanket is draped over each umbrella, from unwanted extraneous noise.

It is also a good plan to have all the tape to be used on an expedition of the same thickness and wound on identical spools. This will enable the researcher to draw up a little conversion chart for calculating, from the reading on the revolution counter, how much recording time is left. It will also help him 'find the place' by using the revolution counter.

A very long, shielded lead for the microphone will be a help if an automatic sound-controlled, or remote-controlled, stop/start device is used, as it can be, with the *Uher 5000*.

4.4. Playback Facilities

Whereas a relatively inexpensive machine will produce a good quality tape, the equipment for playing it back afterwards will be costly and rather cumbersome if it is to reproduce faithfully what is on the tape. Yet, it is an accurate rendering rather than an accurate record of the informant which the linguist needs for his research.

In the studio therefore there must be a tape deck, an amplifier, and a speaker, all of best quality.

4.4.1. The Tape Deck

This can, of course, be the deck of any tape recorder already available and able to play the tracks and at the speed used by the maker of the tape. Or, in the unlikely event that no tape recorder is at hand with these specifications, a deck, that is to say the playing part of a tape-recorder, without recording and amplifying facilities, may be purchased more cheaply than a complete tape-recorder.

4.4.2. The Amplifier and Speaker

An amplifier is needed to strengthen the weak signal provided by the tape deck to the point where it will drive the speaker. The strength of the amplifier, given in output watts, is determined by the minimum number of watts needed to drive the speaker. The tendency now is to use rather inefficient speakers, i.e. speakers which need 30 to 50 watts, rather than the conventional 8 or 10 watts in order to reduce the effect of interference from the air pressures which build up around the cone in motion. Speakers of this range and amplifiers powerful enough to drive them are costly. One solution is to use top quality headphones instead. These will cost about a quarter of the price of the speaker, and will need a much smaller amplifier to power them. Moreover, they give the listener some isolation from his surroundings. Good headphones are preferable to moderately good speakers. However, unless several sets are available, only one person can listen at a time.

4.5. Accessories

Apart from the voltage regulator mentioned in (4.2.2.) above, the accessories needed by for making language teaching tapes are few. A stop-watch, some cueing devices like a bell, buzzer, or pitch pipe, a few 'effects' records of the commoner type (cars, the voices of a crowd, doors opening and shutting, glass breaking . . .) and some recordings of background music, will suffice.

For analysis of field recordings a loop repeater at least, and preferably a segmentator, will be needed.

The loop repeater is an attachment which can be connected to the output of a standard tape recorder. The repeater has a continuous loop of tape, taking anything from 1 to 5 seconds to play. By throwing a switch the tape recorder is cut out and its last utterance, which is now on the loop, is repeated over and again for the researcher to study.

The segmentator is a similar loop onto which a word or more can be transferred but, as the loop rotates, only the first small section of it is played, a section lasting perhaps 1/100 second. This is followed by the next small section, and the next. The effect is to 'creep' through the utterance a little at a time and obtain a more objective record of the nature of the total utterance than would be gained by repeating it *in toto*.

More sophisticated equipment such as transpitch meters and sound spectrograms are more properly the province of a phonetics laboratory.

5. PREPARING A LESSON SCRIPT

5.1. The Necessity for Organization

The only charm about a disorganized taping procedure is, perhaps, the variety of chaos which will be encountered in using it. A sample may be taken by listening to the, unanswered, questions which are inevitably asked by the unhappy participants in the muddle. 'How long does this lesson take?' 'Is this the master tape or a copy?' 'Which track is it on?' 'Is there anything on the other side?' 'Whose voice is that?' 'This is a poor recording: which machine did we use?' 'Who was the recordist?' 'Where is the script?' 'Is any of this stuff copyright?' 'What is this lesson actually trying to teach?' and 'I wonder who wrote it?' The most pathetic cry of all comes from the monitor who, half way through a session in the laboratory, is beseiged by students asking for a worksheet or a diagram which the tape talks about, but of whose existence he was unaware.

There are three places where a modicum of organization and established procedure are essential: (1) in keeping track of progress in the preparation of a course, (2) in the format of the written materials, and (3) in the storage and retrieval of taped matter. The last will be discussed in Chapter 7. The other two will be considered now.

5.1.1. The Progress Chart

A progress chart essentially organizes the human beings involved in the preparation of materials. It is particularly useful when several inexperienced writers or part-time workers are under the direction of a Coordinator or Supervisor. It will go a long way towards avoiding duplication of effort, and preventing one part of a course lagging, in preparation, behind the rest. A sample of such a chart is given in Figure 1. A simple way to use it is to rule up a large sheet of stiff paper—perhaps 3′ × 2′—as soon as the overall design of the course is hammered out. The sheet can then be kept on the wall of the room in which most of the work is done, or where the Coordinator works. As steps are completed in each lesson the dates or initials are written in on the appropriate squares of the chart.

Course		Language Laboratory Lesson Serial Number											
Course Lesson Number													
Purpose of lesson													
Assigned	to												
	on												
Script Outline	completed												
	checked												
Basic Materials	completed												
	checked												
Script	completed												
	checked												
	recorded												
Master Tape	checked												
	copied												

Fig. 1. Sample Progress Chart

It will be seen that each lesson has *two* numbers. One is its number in the course, *Remedial Course*, *Advanced Course*, *Ten Week Intensive Course* or whatever. The other is the number in the total series of lessons prepared by the language laboratory concerned. This second number is far more important and will be used in all filing and cross-referencing. Hopefully there will be many *Lesson 1* s, but only one *Lesson 701*.

5.1.2. Format of the Written Materials (The Lesson File)

The minute a lesson is assigned to a writer he should open a file for it giving the language laboratory lesson serial number as well as the course lesson number on the cover. Straight away a *Top Sheet* is put into the file and completed as far as possible.

TOP SHEET

Lesson Number	Series/Course and Number		Master Tape Number

Aim of Lesson ______________________________
____

Sources ______________________________
____

Copyright ______________________________

Recording Master taped on __________ by __________ (Technician)

Personnel Writer ______________ Illustrator ______________
Voices: (M1) ______________ (M2) ______________
(M3) ______________ (M4) ______________
Conductor ______________

Equipment (For Recording) ______________________________
____

(For Dubbing) ______________________________

Copies ______________________________
____
____
____
____

Student Materials Needed
____
____
____

Running time (Minutes)
____
____

Remarks ______________________________

Fig. 2. Sample Top Sheet

A sample *Top Sheet* is given in Figure 2. The *Top Sheet* is the first of the six components which go to make up a lesson file. The other five are:

(2) The Comment Sheet
(3) The Script Outline
(4) The Basic Materials
(5) The Script
(6) The Student Materials

We shall discuss each of these in turn.

5.2. The Top Sheet

A glance at the sample, Figure 2 will explain its nature and purpose. The *Top Sheet* will answer most of the questions quoted in 5.1., above. The rest can be answered by reference to the tape index which will be described in Chapter 7. It will also be the thing we look at first when trying quickly to assess the value of a bundle of lesson files for any particular teaching purpose. The entries on it should be made as soon as possible after the information is available.

5.3. The Comment Sheet

This need be no more than a plain sheet of paper, with the lesson number at its head, filed immediately after the *Top Sheet.* Monitors who use the lesson can record their criticisms and suggestions on it rather than on the file cover where they are usually found, in a barely legible condition.

5.4. Script Outline and Basic Materials

These will form the backbone of the lesson. The two will account for 50 per cent of the time and 90 per cent of the worrying on the part of the writer. Once they are completed the matter of writing the *Script* itself is largely mechanical.

Typically the *Script Outline* is a kind of lesson plan which is roughed out before going to work on collecting drills and exercises. The *Basic Materials* are the drills and exercises, the context passages and the testing items which have been collected in response to the needs dictated by the *Script Outline.* Thus the two will react upon each other. As the drills of the *Basic Materials* are evolved the items of the *Script Outline* may be modified, and these modifications may need new drills in the *Basic Materials*.

The *Script Outline* has two functions: First, and most obviously, it organizes the selection, grading, and method of presentation of whatever content is to be taught in the lesson. Second, the steps are usually carefully numbered in a decimal or similar analytical sequence: the numbers of this sequence are copied into the margin of the *Script* next to the appropriate steps of the pedagogical sequence. They form a kind of rapid commentary on 'where the script has got to' in terms of teaching.

Two sample *Script Outlines* are given in the Appendix. One is for the teaching of a pronunciation feature, (Appendix I, section I.I.) and the other for a script which is designed to teach a structural feature, (Appendix I, section I.IV). The accompanying *Basic Materials* are given as Appendix I, section I.II., and Appendix I, section I.V. The *Outlines* in both cases are fairly brief and of about the same size. The *Basic Materials* vary considerably in quantity.

Rather than consider in the abstract the principles involved in the writing of the two sets of *Basic Materials*, the reader will understand them better if he compares each item with its corresponding title in the *Outline*.

It should not, moreover, be necessary here to go into the routine features of a good lesson plan or a good exercise occasioned by it. Whether a lesson is to be 'live' in a classroom or 'canned', on tape, the principles will be similar: linking the new with what has gone before, moving one step at a time, alternating presentation with revision, passing from complete control by the teacher to freedom on the part of the student, trying, as far as possible, to make it impossible for the student to give an incorrect response, scrupulously avoiding any achievement testing until the necessary teaching has been undertaken and so on. A few more controversial principles have been employed. For example, in the first *Outline*, Appendix I, Section I.I., the writer has assumed that ear-training must precede production—an assumption which has been in some doubt since Brière's work a few years ago—but on the whole the construction of both *Script Outlines* is traditional to the point of being pedestrian. More interesting and ambitious lesson plans should, by all means, by undertaken. The purpose of including the two present examples is simply to provide an easily understandable framework for our discussion of the scripts, (5.5).

5.5. The Script

The *Script*, naturally, is the only thing that is given to the reader in the recording studio. It must therefore clearly indicate everything that he is to say, including how and when he is to say it, and everything that he is to do. Moreover these two types of information must be kept clearly separate.

The importance of including *everything* that is to be said and done can hardly be overemphasized. Only if he is sure that he will receive adequate instructions at every point can the reader relax and put his whole skill to work on the actual business of reading. If he is expected, even occasionally, to guess for himself, say, the stress pattern of an ambiguous item, or to decide whether to pause between one item and the next, he will be constantly and needlessly distracted. Moreover, the reader will often be someone who has little experience of work in the language laboratory and he cannot therefore be expected to visualize the needs of the situation.

There are several scriptwriting conventions. Their common feature is an attempt to keep separate and yet simultaneously available, the readers' words, the 'stage directions', and the references to the sections of the *Script Outline*. Radio and television scripts commonly have several columns in which these and other items—such as instructions to the technicians—are separated one from the other. However, such a lay-out is needless for our purposes, and plain confusing to anyone not used to it. A simple two column system will usually be enough. Broadly, it specifies that everything to the right of or below the margins is to be recorded, and everything to the left of or above the margins is not to be recorded. Exceptions, to the right of the margin, are (1) the symbols indicating who says what and with what pauses, and (2) any matter placed within parentheses. Neither (1) nor (2) are to be recorded.

Further symbols which can be used in writing a script are the following:

5.5.1. Symbols for Script Writing

M1, M2, M3	Different speakers. Usually M1 and M2 are of different sex. Typically M1 gives instructions and M2 gives the examples, and the corrective responses.
(M1), (M2)	(At foot of page only) warning to first speaker at top of next page.
P=	A pause (silence) equal in length to last utterance. This way of measuring pauses is more useful than an indication of absolute time in seconds for which the reader must look away from the Script to a clock. Moreover the writer can seldom judge the pacing in seconds until he knows the reader's speaking speed.
SR	Repetition/Response by student.
Start	Indication to the monitor or tape dubber of the place where the master tape, once threaded, should be stopped in readiness for the beginning of class or the making of a copy.
Finish	The corresponding end-of-lesson indication.
Upper Case	*Capitals* indicate the word(s) should be spelt out by the reader, letter by letter.
‘. . .’	*Quotation marks* indicate the word or phrase is cited as a subject of discussion, e.g. *In words like ‘through’ the GH is silent.*
Underlining	The speaker should give emphasis to the word(s) underlined.
*	A bell or other response cue.

5.5.2. Lay-Out of the Script

Foolscap size paper is preferable to the usual 8″ × 10″. The fewer the sheets the fewer the distracting page-changes and the noises accompanying them. The left hand margin should be broad, at least 2 inches, to allow for numerical references, script division headings, and the inevitable pencilled changes, timings, and comments which rehearsal brings to light. A glance at either of the sample scripts attached, Appendix I, Section I.III. and Appendix I, Section I.IV., will give an idea of the sort of spacing most readers find convenient. A large, clear typeface, such as a boldface 10 pitch, enables the reader to keep a bigger distance between his mouth and the script, and thus have more freedom to face the microphone.

5.6. The Student Materials

The easiest, but pedagogically indefensible, solution to the question of what to give the students in their booths, is to supply them with everything, i.e. a copy of the *Script*.

The drawbacks to this procedure should be obvious. The laboratory hour, an ideal place for exposure to the spoken language, becomes, like so many classes, text-centered. The student relies on his eyes rather than his ears for comprehension. Moreover, in certain activities, such as testing for aural discrimination, the whole purpose is defeated if the student knows from the script what the item being presented to him is.

Many lessons need no accompanying materials whatever supplied to the students. Others need a word list—particularly where the student is required to mimic a number of unconnected items. Others will require a set of stick-figure drawings, or a picture, to form the context for drills or tests. Occasionally an articulatory diagram should be given.

If the laboratory is to be operated on Library Mode, with many different lessons in progress at the same time, it will be convenient to bind up one copy of each item of student materials needed for the course in a file and place one such file in each booth. The student can then turn to the supplementary materials for whatever lesson he has chosen to study. In Broadcast Operation the same procedure can be adopted, or the individual items can be given out and collected up each time.

5.7. Some Fundamental Principles in Script Writing

Here are a few ideas which may be helpful in a general way to those engaged in writing the *Script Outline*, *Basic Materials*, or *Script*.

5.7.1. Individual or Team Work?

It has been said that a camel looks like a horse which was designed by a committee. In the same way a lesson script which has been written by a group of people usually has certain imbalances and inherent tensions. It is better than one person should be given the responsibility for writing a particular lesson and seeing it through from start to finish. The committee or the Supervisor/Coordinator, can be extremely useful in the overall planning of the course, and in checking an individual lesson's progress at the points indicated on the Progress Chart, Fig. 1. Indeed a man becomes blind to the defects of his own script after seeing too much of it: some outside opinion is almost mandatory from time to time.

5.7.2. The Setting of the Lesson

Is the lesson intended to be a self-sufficient teaching unit, or is it, rather, an adjunct to the regular classroom activities? Usually we will be well advised to make the laboratory lesson a practice lesson, and leave the actual teaching and giving of explanations to the classroom where they can be better demonstrated and absorbed. The *Setting* also includes the place of the lesson in the total series, and the kind of student who will probably make use of it.

5.7.3. One Lesson: One Purpose

With the exception of review lessons, one lesson should center round only one point. Of course, a system or sub-system such as 'The front vowels' may be taken up during a single lesson, but even there two or three short lessons will probably be easier for treating the separate items, and they may be followed up by a review lesson containing the lot. The combined time will be little more than that of one long lesson. The effectiveness will be much greater. It is, for example, much easier to evaluate the individual success of several short units, than that of a single larger one. This is particularly important with regard to the following section.

5.7.4. The Laboratory as Programmed Instruction

Because there is no live teacher to whom an appeal for clarification or evaluation can be made (unless the monitor happens to be free) we should try, in designing our lessons, to obviate such a necessity. This means that a lesson should so proceed, step by step, that the student is virtually unable to make a mistake or to get lost. The 'frames' of the programme should be sufficiently easy for his to succeed almost every time, and, where he does not succeed, he should be able at once to appreciate his error and have time to remedy it. This happy state of affairs can often be achieved by using three phase or four phase drills, rather than the usual two phase ones. An example will help clarify the difference.

Two phase drill (in class)

1 Teacher : Replace the nouns with pronouns
George is late today
2 Students : He is late today

1 Teacher : George and Bill are late today
2 Students : They are late today

1 Teacher : The rest of you are not late today
2 Students : We are not late today

Three phase drill (in language laboratory)

1 M1 : Replace the nouns with pronouns
George is late today
2 SR : (He is late today)
3 M2 : He is late today

1 M1 : George and Bill are late today
2 SR : (They are late today)
3 M2 : They are late today

etc.

Four phase drill (in language laboratory)

1 M1 : Replace the nouns with pronouns
George is late today
2 SR : (He is late today)
3 M2 : He is late today
4 SR : (He is late today)

1 M1 : George and Bill are late today

etc.

In the three phase drill, M2 gives the correct—and, hopefully, corrective—response so that the student can know if he is right or wrong. In a live class this is not necessary: he hears his classmates, and if they are wrong the teacher steps in.

In the four phase drill the student hears the correct response from M2 and then has time to say it himself before going on to the next item.

5.7.5. Contextualization

With the possible exception of elementary pronunciation drills, all drills should be given a context if at all possible. The context may be in the form of a recorded dialogue which comes before the drills and which contains examples of the item to be drilled. It may be a brief story. It may be a picture, or it may be the real life situation of the students: the laboratory in which they are working or the school in which they study. But there should, somehow, be some context attached to the exercises in the laboratory or the prospects of transfer are slim indeed.

5.7.6. Instructions

These should be simple and direct, to the point of impoliteness if need be. 'Listen: join in when you understand' is often quite adequate. 'Answer when you hear the bell', 'Same procedure as the last drill', 'Rewind and replay. If you have made more than three mistakes do the lesson again',—all of these are clear. Long preambles and wordy instructions are abhorrent to the student who simply wants to know what is expected of him. Also undesirable is any change in the wording of a routine instruction from one drill to another. Variety and style should be introduced, but into the drills not the instructions. If, for Drill 1, we begin, 'Listen and repeat' then we should not begin Drill 2, a similar drill, with 'After you have heard the following words, repeat them'.

5.7.7. The Limits of Memory

We are not aiming to develop the memory of our students in the laboratory. The items which he has to repeat should therefore be easy to memorize. Ease is usually a question of length. Seasoned drill-writers differ in their estimates, but the limit of what can be easily remembered is usually set between fifteen and twenty syllables.

'Can you tell me which Chapter we are meant to study?' (13 syllables) is simple enough to remember for a few seconds. 'I think it's the fourth or fifth in the second part of that new book on Plastic Surgery' (22 syllables) is for some reason extremely difficult.

Naturally if the sentences to be practiced are given in the *Student Materials*, these limitations are not so important.

5.7.8. Suitable Types of Drill

It would be a waste of space to repeat here sections from the many excellent manuals of language teaching which give examples of the various types of drill. A large number of those specifically suited to the Laboratory are exemplified and discussed in John D. Turner's *Programming for the Language Laboratory*, London: University of London Press, 1968.

6. MAKING THE TAPE

6.1. Scripts

A clear script will go a long way to ensuring a speedy and efficient recording session. There should be a copy for each reader, one for the conductor, and one for the operator of the tape-recorder if these last two are different. It is important that *any* change made at the last minute, e.g., while rehearsing, should appear in *all* copies of the script. If not there will be troubles when a subsequent recording is made from the same set of scripts.

A good plan is to type the script on a spirit duplicator master. The master can, after providing the four or five copies for the recording, be filed away with the other materials in the lesson file. Laboratories are often asked, by visitors, for 'copies of the lessons'. The visitor seldom has blank tapes with him and, even if blanks are received later, and copies dubbed and returned, the operation is seldom worth the trouble. For one thing, two different institutes will seldom be able to use identical material. For another, the evaluation of a complete set of *tapes* by the receiving institute, with a view to using them, is a very slow business. Those concerned have to sit with a tape-recorder, or in a lab, for many hours patiently playing and replaying, accepting and rejecting, each lesson tape by tape. In the first instance we serve the visitor much better by giving him a set of scripts. These tie up none of his precious stock of blank tape. They are cheap, light, and easy to skim for a quick evaluation. Unfortunately, since recording sessions seldom use more than five copies of a script, the standard practice is to type them in top plus four carbons. Thus no spare copies are available for distribution. The alternative of putting the material on ink-type stencils has many drawbacks. Corrections are hard to make once the stencil has been run. The stencil itself is messy to store, and to run off a couple of copies of each stencil of a course for individual visitors is impractical. The spirit master is easier on all counts. It also permits the use of colours to indicate pitch contours, stress marks, and similar features whose marking often makes the script harder rather than easier to read.

The pages of the script should each be headed with the lesson number. This is because, while recording, the pages must be separated and paper-clipped to cardboard backings for ease in picking up and putting down without producing an unwanted rustling noise.

6.2. Voices

In some cultural settings a man's voice seems more acceptable than a woman's. It is also true that poorer quality equipment tends to omit reproduction of the higher frequency sounds while giving a quite adequate indication of the lower ones. However, assuming that more than one reader is to be employed, then, both for the sake of variety and in order to help the listener differentiate between the two readers, two voices in the greatest contrast available should be chosen. The contrast between man and woman is easiest to provide.

If two readers of the same sex are to be used then it is advisable to have each available reader make a short test recording and, in order to choose the most contrasty pair, play the test back. A face-to-face evaluation is extremely difficult. Factors of expression, gesture, and our personal knowledge of character and background confuse our judgement.

It is useful to observe, for all lessons in a series, some convention about which voice (e.g. the male or the female) gives the instructions and explanations, and which gives the cues. By this means, far better than by the use of an annoying bell or 'bleep', the student knows when he is expected to respond, and when merely to pay attention.

Professional actors/readers are seldom competent for our purposes. Their training inclines them to dramatize at worst, and pronounce with an artificial clarity at best, their lines. Even the amateur, however, must be warned against these two mistakes.

6.3. Equipment

As explained earlier (2.5) the simplest arrangement is to have the tape recorder—one of the studio models—inside the recording studio and operated by the conductor. If a table is used by the readers, and there is much to be said against this, then either the microphone(s) or the tape-recorder, but not both, may be placed on it. A chair, stool, or low table will be convenient for the tape-recorder because (1) it sites the controls at a comfortable level for the recordist's hand, and (2) it helps shield the microphone from mechanical sounds emanating from the tape-recorder itself.

A mixer is a great help. With it, two or more microphones can feed into the same input on the tape-records. The mixer provides a separate volume control for each microphone. Thus a soft-spoken reader can be 'turned up' and a loud one 'turned down' at the same time and in relation to a third reader of average loudness. Failing a mixer and separate microphones, an omni-directional microphone should be placed in the center of the group of readers and moved, by trial and error, and with an eye on the recording level indicator of the tape-recorder, nearer to the softer and further from the louder speakers, until a balance is achieved. This initial balancing up of the voices is absolutely essential.

6.4. Rehearsal and Recording

A rehearsed reading of the full script should have been completed before, and preferably shortly before, coming to the studio. Quite apart from wasting precious studio time, a rehearsal in a typical, unventilated studio will almost always be less comfortable than one outside. For the sake of adjusting the record levels, however, it is wise to read a page of the script just before making the recording itself.

With the recording volume controls set, the necessary details such as the tape number and the readers' names filled in on the *Top Sheet* of the lesson file, the conductor should turn the play-back volume to zero, set the mode control to 'monitor tape', press the record key and set the tape transport in motion. Allowing a couple of seconds for the speed of the flywheel to steady, he should bring in the first speaker by a clear, upward sweep of the hand. The gesture should be a large one, clearly visible out of the corner of the reader's eye, as he looks at his script.

6.4.1. Pacing the Reading

The two common tendencies are to read instructions and explanations too quickly and examples too slowly. It is hard to decide which causes more damage. An instruction read too quickly can, at least in student controlled programmes, be repeated, but an example which is unnaturally slow cannot be speeded up to normal speech tempo by any means. Slow pacing engenders sleep. In many commercially prepared language teaching tapes (*English Fast* is a notable exception) there is time for two or three student repetitions where only one is called for. With English and other stress-timed languages, the problem of pacing should not be as great as it seems to be. If, as Abercrombie says, the salient syllables are isochronously spaced, and 'good timing' on the part of an actor lies in taking up the rhythm of the previous speaker, then between model and student repetition, between student repetition and corrective response, and between corrective response and the next model there should be an unbroken beat. Such a pacing may be slightly too fast on first run through, but will usually prove acceptable in the end. Pacing which is too slow starts out as easy for the student but never brings him to his desired goal, normal speech tempo. Moreover, with normal pacing, even the first time through the student is not driven mercilessly onwards by an inexorable machine: he has, after all, his pause button.

6.4.2. Timing the Pauses

A major problem with inexperienced readers is that of spacing, of allowing the right amount of time for the student response. It seems that keeping silent for P × 2 (a pause twice the length of the last utterance) or P × 4, or whatever, is abhorrent to the novice reader. He cuts his pause and scurries on. And yet it is far easier to say the last utterance over twice, or four times, mentally before proceeding, than it is to judge a pause of five or ten seconds. Usually, if the conductor is mercilessly firm for the first few recording sessions, the readers learn to control their impatience. Above all they must learn to control it themselves. If the conductor has to bring in the reader after each long pause then the question of what is a long pause and what is short enough to be left to the reader's judgement arises, and endless uncertainties result.

Timing pauses by the clock is hardly possible for anything under eight seconds. To look away from the script, focus on the second hand, look back to the script, find the place, and continue requires several seconds in itself and is very disruptive to any sequence of utterances. A makeshift, if timings must be given in seconds, is to suspend a white object such as an old tennis or golf ball from a thread approximately 100 cms long. The swing of such a pendulum is one second in each direction, and it is silent. If it is suspended just above the microphone it can easily be seen out of the corner of the eye without looking away from the script. A heavy enough object once set in motion will continue to swing for several minutes.

6.4.3. 'M3'

Typically a script will be read by only two readers, M1 for instructions and M2 for cues/correct responses. Occasionally it is helpful to 'demonstrate' how a drill works. For this demonstration a 'student response' appears in the correct place on the master tape. The reader, M3, has probably only these words to say during the whole recording session. It is unreasonable to expect a person to sit through an hour in a hot studio simply to utter some three word banality. A solution is for either M1 or M2 to read the miserable part allotted to M3. Moreover to give the impression of a third, new, reader in the studio it is not necessary for M1, or M2 to disguise his voice with squeaks or such devices. It will suffice for him to turn directly away from the microphone and, addressing the ceiling at twice normal volume, pronounce the necessary words.

6.5. Correcting Mistakes

Mistakes occur. Those detected at the time of recording are easily set right. Those detected later, whether it be a few lines later or not until the playback of the 'finished' tape, are more troublesome.

6.5.1. Mistakes Detected when Made

Whoever notices it simply says, 'Stop. We've made a mistake'. There is no need to indicate the situation in dumb show. The tape, from the mistake onwards, *and including the word, 'Stop. . . .'* will have to be re-recorded anyway.

The simplest course then will be for the conductor to stop the tape-recorder, rewind for three or four of seconds (i.e. probably ten times that much tape-time), turn up the playback volume and play back the tape until any suitable 'Pause' instruction is reached. He then indicates the place to the readers on the script, by reference to a marginal number plus or minus so many lines, turns down the playback volume, presses the record key, and after a second brings in the reader as usual. The *Ferrograph* Series VII has an instant changeover mechanism from *Playback* to *Record* which facilitates this operation, but whatever the machine used it is probably easier, as above, to find a place on the tape and then direct the readers to it, rather than, as is commonly the practice with amateurs, to decide on a place in the script for picking up and then try to bring the tape to that point.

Recording then proceeds to the end of the script or to the next mistake.

6.5.2. Mistakes Detected Later

If the mistake is the substitution of a word or phrase for another of the same or shorter length it will usually be possible to go back along the tape to the place concerned and re-record the correct word on the right piece of tape speaking slightly faster than usual. The 'right piece' should have been marked with a wax crayon as its beginning and end pass some point on the tape deck. The most satisfactory place will, of course, be the erase head, and this can be found easily in tape-recorders which have a hinged cover to the heads. In other models a mark should be permanently painted on the head-cover just above the erase head and the tape lifted out for marking each time. A third possibility is to use some other point under the path of the tape on the deck.

If the mistake consists of an omission, however, or if it is the substitution of a short item for what should have been a longer one we will have difficulty in fitting the correct item into the available space. In this case the correct item should be recorded on a separate piece of tape and spliced into the master in the right place after erasing the incorrect one. A slight hiatus will result, but the disturbance to the student will be so slight that we are not justified in taking the rather elaborate measures which would be needed to remove it entirely.

6.6. Music

It has been found that the separation of drills or sections of a lesson by a short passage of light music has at least two things in its favour: (1) the student relaxes better and (2) in fast forward or fast rewind, the easily-recognizable passages of music are a great help in finding the place.

7. STUDIO MAINTENANCE

7.1. Storage

The first need is to separate the masters from the copies. One effective method is to mark not only the boxes but also the master tape spools which they contain with a distinctive colour sticker. Certainly the masters should be shelved separately. A common practice is to keep the actual masters under lock and key, store in the console itself one copy of each master for the courses being given (for use in broadcast mode sessions) and place the multiple copies of each lesson needed for library mode sessions in pigeon-hole shelving in the students' section of the lab.

The practice of recording several lessons on one master tape is not to be encouraged. Let each master recording be on a separate spools even if the spool is thus only half filled with tape.

It is apparently possible for a heavy electrical discharge such as occurs in a lightning flash to erase a tape. The event is unlikely but as a precaution we may consider storing at least the masters in a metal cabinet which has a ground lead attached to it.

7.1.1. Storage of Student Tapes

The pigeon-holes should be a centimetre or so higher than the tape boxes, to allow for their easy extraction. To discourage the collection of dust they should not be higher. They should be wide enough to contain the six or twelve multiple copies which make up a set for each lesson, deep enough so that the tape goes in all the way, but shallow enough so that it a tape cannot slip behind its fellows. A set of pigeon-holes 2.20 M high by 1.10 M wide will consist of 60 compartments each able to store 12 × 270 metre long-play tapes.

It is unlikely that any lab would want to tie up $60 \times 12 = 720$ tapes at one time, even if sixty different lessons were ready. However, it will be very helpful to the students if the 60 compartments are available and labelled with their appropriate numbers in the whole series. At the beginning of the semester the sets for lessons 1-20 can be placed in the first twenty compartments. After a few weeks, the sets for lessons 1-10 may be withdrawn, erased, 're-filled' with lessons 21-30, and returned to the students' shelving, not of course to their original compartments but to the compartments numbered 21-30.

Such a system saves a lot of work. For one thing, it is not necessary to remove the old title from each tape box and tape, and then write the new one. The sets can be simply coded with a band or bands of coloured *passe-partout* on the spines of the boxes and on the tape-spools themselves. A set will thus always remain a set, and a tape out of place on the shelves will strike the eye of the monitor. Only in the unlikely event of two whole sets being in use at the same moment is there any probability of a tape being returned to the wrong compartment.

Every spool should be numbered. See section 7.5. below for details.

7.2. Copying and Copyright

If multiple copies are needed for an Audio Active Comparative laboratory they can usually be prepared in the lab itself. The master is put on the console tape deck. The circuit is set for broadcast mode. The master motor switch is turned off and in as many booth as copies are needed blank tapes are threaded up and the tape-recorder is put into the 'record' position. Now, at the console, the master tape is set in motion and as soon as the 'start' direction is heard, the master switch for the booth tape transports is thrown. They all begin to make copies from that point on simultaneously.

If no language laboratory is available and yet multiple copies are still needed, then the choice is between using a high speed duplicator such as the *Ampex 3200* Series which is quick in operation but extremely expensive, or devising a regular-speed duplicating system made by connecting the output of one ordinary tape recorder, playing the master, to the inputs of X other ordinary tape recorders, carrying blank tapes. The second system can be speeded up slightly if, in copying a master tape made at 9.5 cms/sec, both the master and the blanks are set to move at 18 cms/sec. There will be a very slight loss in fidelity but the reduction in the time taken to make the copies is often ample reward.

The copyright question is obscure in practice, though clear in theory. The language tape issue is subsidiary to a consideration of the general status of commercially prepared tapes. Many companies have expended considerable sums on hiring orchestras and singers to record music and songs. It is only fair that their profits should not be undermined by a shrewd operator who buys one copy of their tape and produces multiple copies for sale at a price far below that of the original. The situation with regard to language tapes is parallel but not identical. The manufacturers supply the original tape for avowedly instructional purposes. Yet theoretically the moment their tape is put on at the console and the student copies begin to be made, copyright has been infringed. The copying is being carried out (*a*) without the manufacturer's permission and (*b*) for the profit of the institution in which the laboratory is situated.

The very high prices which the manufacturers put on their tapes, typically $200 a set of ten small tapes, is both the cause and the result of this situation. At such a cost no lab can afford a set for each student. At such a profit the manufacturer can afford to turn a blind eye to whatever copies may be made *by and for* the purchasing institute.

In regard to language tapes the legal subtleties are endless. The spoken language is a matter of the public domain. The basic materials especially phonological examples for many teaching tapes are much older than the tapes. Moreover it would be a foolhardy publisher who filed a copyright infringement suit against a teacher who, while listening to a commercial tape through headphones, re-recorded with his own voice sections of it on a second machine for use in his classes. At the other extreme, a man who simply dubs copies of commercial tapes and sells them retail to individuals or groups is plainly doing something unethical and would not be viewed sympathetically by the courts. In practice, though not in theory, the two factors, price and distribution, will usually determine the attitude of the copyright holder. If no money changes hands and if the copies made are for use in the institution which has purchased the original there is unlikely to be any objection.

Tapes prepared by academic institutes and made available on an 'at cost' basis to other institutes should be freely copiable for use elsewhere in the same setting. What is more often desired here is an acknowledgement, not only of the source, but also of the context of the original. It is very annoying, for example, to find a frankly experimental tape which has been sent to Institute 'A' for comment, copied to Institute 'B' as a finished product of the original producers. Moreover 'B' would have got a clearer copy from the master than from 'A' 's copy.

7.3. Editing

In section 6.5.2., above, we discussed one method of inserting new material into a tape for purposes of correction. That method is the 'cleanest' in that the original master recording, albeit in a rearranged form, is retained.

A second procedure is common and in many ways easier. For this, two tape-recorders are connected from output to input by a patch cord. The original recording is placed on the first and a blank on the second tape-recorder. The first tape-recorder is set to 'play', the second to 'record'. The two transports are started simultaneously. The result is to produce a copy of the original on the second tape recorder. Just before the error is reached in the original both tape recorders are stopped, the first by turning to 'stop' and the second, infinitesimally sooner, by use of the 'pause' key. Then, using 'fast forward' the original tape is run forward to find the correction which was recorded at the end. Both tape recorders are started once again and the correct passage is thus recorded in the correct place on the copy. At the end of the correction both machines are again stopped as above, and using 'rewind', the end of the error is found on the original. The two machines are once more set in motion. If the 'pause' key is skilfully used no 'clicks' will result and the finished (second tape-recorder) tape will be splice-free. The only disadvantage will be the slight falling off in quality which accompanies every copying process.

The deterioration of quality can be kept to a minimum by (*a*) using good equipment, (*b*) possibly more important, using two identical tape-recorders and (*c*) using models in which it is possible to take the output directly from the playback head of the first machine (rather than through the amplifier).

7.3.1. Exploding

There is more, however, to editing than the rectification of mistakes. One activity known as exploding a tape can be very useful.

Let us suppose that the *Script Outline* contains a sequence such as the following:

3. Student listens to dialogue between M1 and M2.
  3.1. Dialogue between M1 and Student as follows:
    *3.1.1. M2's lines read singly with pause for student repetition.
    *3.1.2. M1's utterances given as cues. Student responds with M2's lines each time.
  3.2. Dialogue between M2 and Student as follows:
    *3.2.1. M1's lines read singly with pause for student repetition.
    *3.2.2. M2's utterances given as cues. Student responds with M1's lines each time.
  3.3. Students connected in pairs for whole dialogue.

To prepare the master tape, segments of the dialogue, i.e. the words of one speaker only with pauses in between, must be recorded at each of the places marked with an asterisk. It is, in fact, extremely difficult to read dialogue fragments in a natural manner. The parts of other exercises such as forward and backward chaining, completion drills, and build up drills are even harder to read naturally in isolation.

Explosion offers a handy way of avoiding unnaturalness. The whole dialogue is recorded once, and only once. (i.e. for section 3 of the above plan.) The recording is then placed on the first of two tape recorders set up for editing as in 7.3., above. For section 3 the dialogue is transferred to the second (blank) tape. For section 3.1. the two tape recorders are stopped and the first run back to the beginning of the dialogue. The dialogue is then *exploded* as follows:

The first tape recorder is started and run until the first of M2's utterances is about to appear. The second tape recorder is then started. Thus a copy of M2's part is obtained. The first tape-recorder is stopped and the second runs on, recording nothing, for a time sufficient for the student to repeat M2's utterance. Then the second tape recorder is stopped and the first allowed to play M1's next utterance, without of course recording it on the blank tape. As soon as M1's utterance is finished the second tape recorder is started again in time to record the next M2 utterance, and the process repeated. In this way we end up with M2's lines, and only M2's lines, together with pauses for student repetitions, on the second tape-recorder's tape. The process for exploding M1's part is, naturally, the mirror image of the one just described. We profit by having now on the copy tape literally the original dialogue rather than a series of attempts to reproduce it piecemeal, as our model.

In essence then, explosion consists of stopping the original from time to time while allowing the copy that is being recorded to run on as blank tape. The 'pause' key and not the 'stop' key should be used.

7.3.2. Quality Correction

Editing by copying, as just described, enables us also to correct an overmeasure of bass or treble frequencies in the original. Few tape-recorders, with the notable exception of the *Ferrograph VII* series permit any adjustment in the treble bass balance of the *incoming* signal. However when *replaying* the master, adjustments may be made before feeding the output into the second tape-recorder. For this a connection from the *line output* and not playback head on the first tape-recorder must be made.

7.4. Erasing

The slowest method of erasing a tape is to run it through a tape-recorder set to 'record' with the volume to zero. Some language laboratories such as the Connevans series cannot, even by this means, erase the upper (or master) track, and the tapes must be erased either on another tape-recorder or on a bulk eraser. The latter is almost an indispensable accessory where much erasing has to be done. It is cheap, portable, and efficient. The tape to be erased is usually placed on a spindle on the top of the bulk eraser, turned slowly a couple of times, and lifted off. The operation takes only a few seconds per tape. Wrist watches should be removed when operating the bulk eraser, and the bulk eraser should be permanently stationed somewhere well away from the place where tapes are habitually stored or prepared.

7.5. Records, Catalogue and Files

The *Lesson File* has already been described. A filing cabinet should be provided not only to hold the lesson files, but also for storing the copies of student materials if these are not bound together, as is preferable, in folders in the booths.

7.5.1. The Tape Index

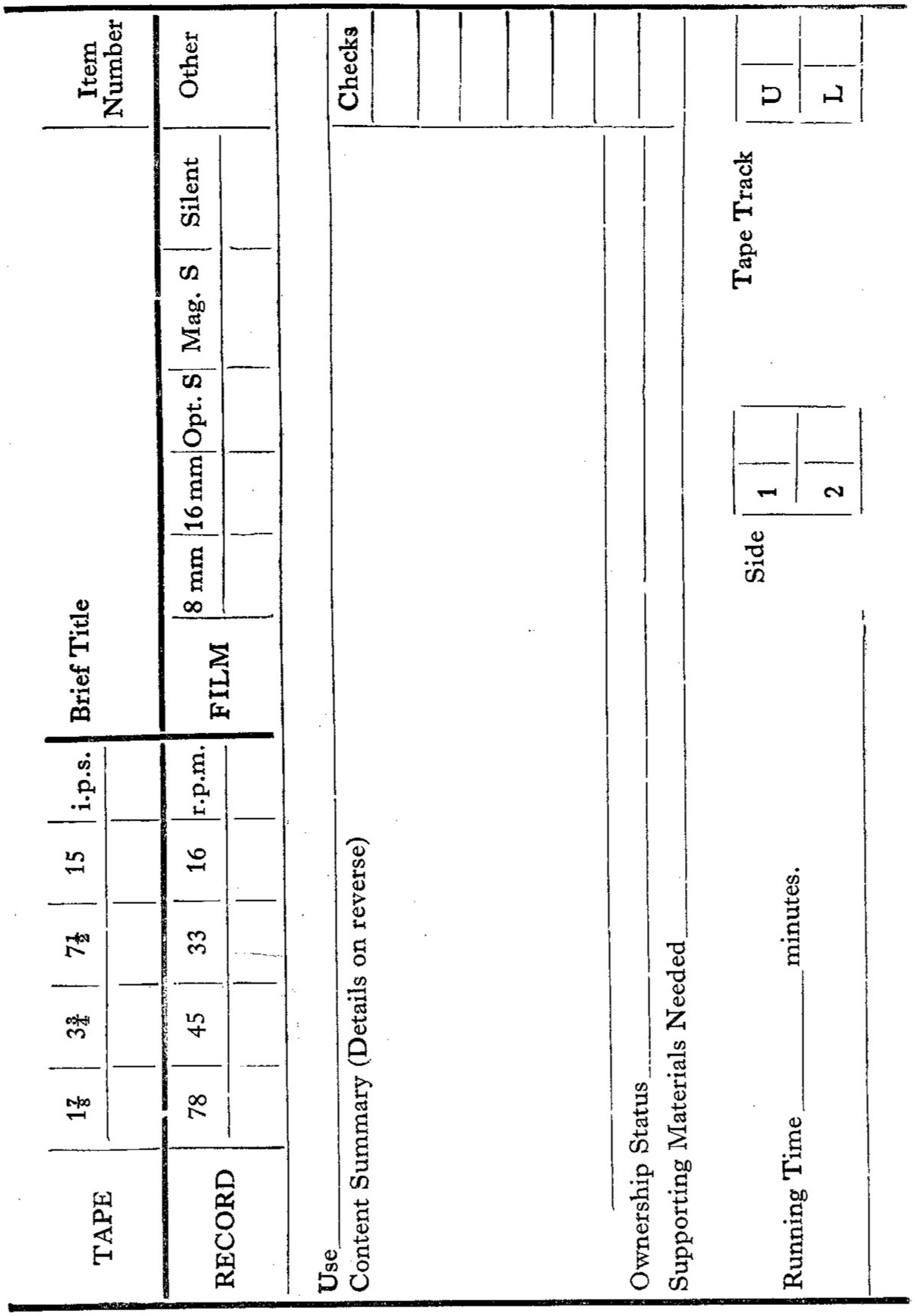
Card-indexing tapes as though they were library books is only a half solution. A library book seldom contains blank pages which may be printed on at a later date. Nor are chapters transferred from one binding to another from time to time. Neither does a book containing only plain paper find its way onto the shelves, nor is a book's contents erased and different subject matter printed in it.

The only satisfactory solution known to the present writer is to card-index the *spools* numerically on a set of spacious, five-by-eight cards and then fill in the card with details of contents as recorded matter is placed on a particular spool.

A sample index card (which will, incidentally, serve quite well for the cataloging of other audio-visual material) appears as Figure 3.

The essential feature of such a system of card-indexing is that each spool has a number on it and each number has a card in the index. If these two conditions are rigidly adhered to, and if the entries are made immediately after making any change in the contents of a spool, there should be no confusion. For example, if a spool is purchased empty then the only entry on the card will be the number of the spool (top right) and a circle round the word 'tape' (top left). When blank tape is wound onto the spool, the word 'blank' may appear in pencil in the large middle square ('Contents Summary'), and so on step by step. The column for checks is principally to provide a convenient place to record during periodical stock inventories that a tape has not been lost.

It is convenient to have two sets of cards: a numerical catalogue for convenience in inventorying, and a subject catalogue where,



TAPE	1⅞	3¾	7½	15	i.p.s.	Brief Title						Item Number
RECORD	78	45	33	16	r.p.m.	FILM	8 mm	16 mm	Opt. S	Mag. S	Silent	Other

Use ______

Content Summary (Details on reverse)

Checks

Ownership Status ______

Supporting Materials Needed ______

Running Time ______ minutes.

Side 1 2

Tape Track U L

Fig. 3. Sample Index Card

for example, the language laboratory master tapes of the various courses may be grouped together and apart from, say, the linguistic data obtained during field work.

12540

7.5.2. The Studio Log

A well-run recording and/or laboratory teaching programme usually has a log book. The purpose is simply to record what goes on from day to day. The book may be small and the entries short, e.g. 'Recorded masters of Course . . . Lessons . . . and . . .' or 'Sent set of tapes for Course . . . to . . .' The log book will help estimate how much time has been spent in the various laboratory operations such as lesson script writing, demonstrating the lab to visitors, making copies, having the lab serviced, and so on. Factual information of this kind is extremely useful in planning what can and what cannot be done in a given period ahead.

7.6. Maintenance of Equipment

As usual, prevention is better than cure. Dust, damp, heat, voltage fluctuation, and incorrect handling are the great enemies of the tape-recorder and console alike. Something, though not much, may be done about the first three by covering the equipment when not in use and, in extreme cases, providing air conditioning for the room where the equipment is housed. Voltage fluctuation, if serious, must be controlled by a variable transformer, and manhandling is usually the result of allowing people to operate the equipment before they have been properly instructed in its use. A rule of thumb is that students will continue to experience difficulties in operating the equipment for their first four sessions in the lab, particularly if the four sessions are spaced out rather than scheduled on consecutive days. During this initial period of inexperience every effort should be made to persuade students that when in trouble they should immediately call for assistance rather than try to force a key or pull a tape.

Certain routine maintenance procedures are nonetheless necessary. Once in two weeks, more or less depending on the amount of use the equipment gets, the following should be done.

7.6.1. Use the Machines for Ten Minutes

Do not allow tape-recorders to remain idle for long periods. If set in any position except 'stop' the machine should not be left idle for even a few hours. The pinch wheel becomes oval and the other rubber parts may be distorted.

4R,

DCB

7.6.2. Clean All the Heads

A soft piece of cotton tape rubbed over the heads on the surfaces touched by the magnetic tape will remove most of the oxide and other powdery matter which collects there. The kind of cord used to hold up pyjamas is often quite suitable. If any adhesive from splices has collected, or any other matter sticks obstinately to the heads the cotton tape may be moistened with absolute alcohol. Carbon Tetrachloride, which was used for this purpose up to a few years ago, should not be employed. It dissolves some of the newer plastics into which the heads are set.

7.6.3. Deflux the Heads

The heads, and indeed several other metallic parts of the tape transport, are susceptible to magnetization. They become magnetized as a result of the miles of magnetic tape passing them. If this secondary magnetic field is allowed to build up unchecked, a hiss will result on the tapes themselves. The method of demagnetizing is essentially that of bulk erasing. A miniature bulk eraser with a protruding tip must be purchased and, once in a few weeks passed through the tape gate and in front of any other magnetizable studs or spindles near the path which the tape follows.

7.6.4. Oiling

Oiling in the wrong places can cause so much trouble that it is tempting to advise against all oiling of tape recorders except by a technician. However, the motor and a few other parts do require lubrication and, if he is supplied with the proper lubricant by the manufacturer or his agent and with a handbook for the machine concerned, an intelligent adult should be able to do the job without making a mess of it. Luckily oiling is very seldom needed. Once a year will usually do.

8. USING THE TAPE

8.1. In a Language Laboratory

The laboratory is an expensive piece of equipment: The more efficiently it is administered the easier its expense can be justified. There are several things we can do to get the student moving quickly and there are several ways of helping the monitor. Anything done for the one is, in fact, a help to the other.

8.1.1. Student Orientation

A student orientation tape should be prepared. During the first session of a group in the laboratory copies of this tape may be placed in readiness in the booths, threaded and brought to 'start'. On the blackboard will be some such instruction as,

> 'Sit down in any empty seat. Put on your headphones with the microphone in front of your mouth. Press the red, *start*, key. Adjust the volume control (marked "volume") to a comfortable level. If you have any problems please raise your hand.'

A well-planned orientation tape will do the rest. It will explain the controls and give time and tape for practice in their use in recording and in playback. The major problem, that of threading up, is reserved for another time.

One advantage of using an orientation tape is that students can play it over as often as required. In this way students who have no 'gadget sophistication' can pick up the necessary knowledge without boring those who, for example, are lucky enough to own their own tape-recorder. Again, students who join the course late can conduct their own orientation. Moreover, the same tape, or one very similar, can be used without disturbance to the staff for explaining the lab to the frequent groups of visitors who come to see it.

The orientation tape will not, however, entirely dispense with the need for some written material in the students' booths, at least for the first few weeks. Students like to have some sort of printed instruction to which they can refer if they forget how to thread up or if they experience other difficulties.

A complete set of supplementary materials for each course should be provided in each booth at least in library mode operation laboratories. With this set should be provided a list of the lessons with a brief summary of the contents of each and its running time. The time-table according to which copies will be available or withdrawn (see 7.1.1., above) should also be given. Without these three pieces of data it is difficult for the student to schedule his work week by week.

8.1.2. The Monitor's Work

Before each laboratory session, and preferably well before it, the monitor makes sure that enough copies of the required tapes are available. In the unhappy event that they are not, it is still possible to provide multiple copies of two or three lessons—as many as the console has tape programme sources—during the first part of the session. The students are, in fact, sitting in booths where a blank tape is being dubbed from a master at the console. In most laboratories they can, during this period, hear the tape and, responding to it, hear their own responses. Only in a few types of installation is it possible, however, for them to record their responses while the copy is being dubbed.

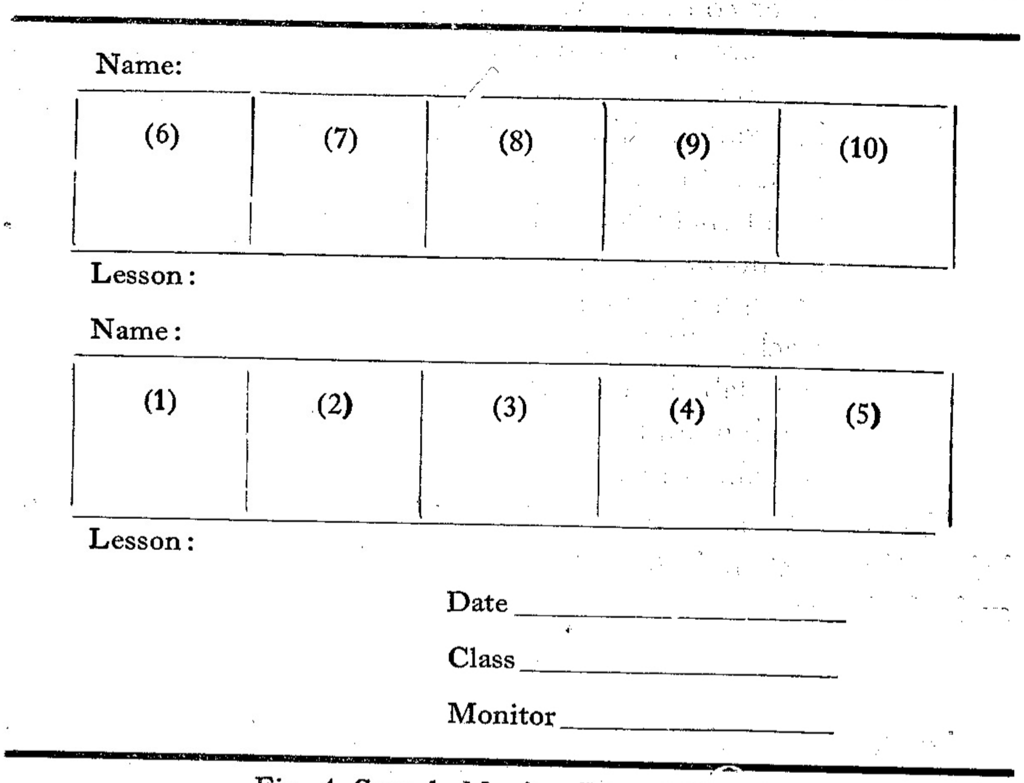
In broadcast mode operation of an Audio Active Comparative laboratory, each student begins with a blank tape and a copy is dubbed as above from the console. The blank tape need not be removed from one end of the semester to the other. The monitor's job is made much easier if the blank tape is either (*a*) in a cassette, or (*b*) provided with 18″ of metal stop foil at either end, and the student recorders are adapted to stop the movement of the tape when the foil is reached. Either of these two expedients saves the endless threading up of a dozen or two tapes at the beginning of every laboratory class.

The actual monitoring of the students' work may be carried out in at least three ways. (1) The monitor may simply listen, and make notes for discussion afterwards with the student. (2) He may give a rapid word of encouragement to those who are tackling the problem of the lesson satisfactorily, so as to spend the major portion of his time with those less fortunate. (3) He may try to give equal attention to everybody, correcting the grosser faults, and specifically the teaching point of the lesson, when monitoring weaker students, and taking up more subtle points with the stronger students. However he works he will have too little time. In a twenty booth lab working for 45 minutes, one minute of actual listening and comment per student will be the most we can expect if we remember that the student is not, in fact, talking more than about half the time. He is listening for the other half.

8.1.3. Student Records

Whatever method the monitor adopts, he will often, and the student almost always, want to maintain some record of progress from session to session. In the obscurity of their booths the students take on a certain anonymity which frustrates the usual methods of progressive evaluation. There are amongst others two methods of maintaining student records which seem to work well in the laboratory. The first is for a small lab, up to about twelve booths. The second is more useful in a larger installation.

(1) *Monitor Record Sheet:* The monitor has in front of him a sheet printed with the outline of the booths, as in Figure 4. When the students arrive in the



Name:

(6)	(7)	(8)	(9)	(10)

Lesson:

Name:

(1)	(2)	(3)	(4)	(5)

Lesson:

Date ____________

Class ____________

Monitor ____________

Fig. 4. Sample Monitor Record Sheet

laboratory they choose their lesson and sign their name above the square representing the booth in which they will be working. The monitor is thus provided with a handy square in which to write his notes on progress or regress. He does this during the course of monitoring by matching the squares against the intercom switches, rather than by trying to remember the names and seating of individual students. If the students come in scheduled groups and can be given the same seat each time, and if the monitoring sheets are kept in a loose leaf ring binder, the monitor has only to turn back the pages to see, in the same square of each diagram, a record of the student's progress session by session.

(2) *Student Record Sheet:* For every student who uses the laboratory a sheet on the lines of that shown in Figure 5 is provided. It should preferably be of stiff card with a tab as illustrated. By use of differently placed tabs it is easy to keep the records for any one course together yet separate from those of other courses. When the student checks in he selects his card from the stack, fills in columns 1, 2, 4, & 5, and places it on the console. The monitor thus has in front of him for each occupied booth a card on which to write his comments and his suggestions about materials to be used in the next session. When a student checks out he takes back his card, fills in column 3, reads the comments, and return it to the stack. This procedure is particularly useful when the lab is operated on a library mode, students coming and going throughout the day, and unable to take the same booth each time.

The monitor's notes on either kind of record may be quite brief. One system is to note only the points of failure, by some such device as

'A & P p/f'

i.e. 'Student fails to distinguish either passively or actively between the bilabial and the labio-dental.' If later in the session

Student..

Course..

(1)	(2)	(3)	(4)	(5)		
Date	Time		Booth	Lesson	Monitor's Comments	Initials
	In	Out				

Fig. 5. Sample Student Record Sheet

the student learns to hear the distinction a circle may be drawn round the 'P'

'A (& P) p/f'

When the whole problem is cleared the record will read

['A (& P) p/f']

It will thus remain on the record; a reminder of something achieved and something to check in subsequent sessions. One laboratory has adopted the policy of noting mistakes relevant to the lesson being studied at the top of each square (or on the left hand side of each line), and mistakes in general at the bottom (or on the right). This provides a useful measure of how much transfer of a particular feature there is between the artificial study situation of the lesson and the more general situation of using the language.

8.2. In a Classroom

Even if no laboratory is available, a taped lesson can often provide not only a better model but also a better pedagogical approach than the average language teacher who neither is a native speaker nor has the time to prepare his lessons thoroughly.

Three strategies for using a tape-recorder in the classroom have been described in the 1966-1967 issue of the Bulletin of the Central Institute of English, Hyderabad.[1] In brief the tape-recorded material may be used as a substitute for the teacher, or as an additional teacher.

A teacher who uses the tape as a substitute should preview it, introduce his class to its methodology, listen while they use it, and follow up by repeating any sections which gave general difficulty. Also by way of follow-up he should have additional drills ready if necessary. He should keep an ear on the quality of the tape-recorder's reproduction at all points in the room. High, bare walls produce an echo which can destroy intelligibility entirely.

When used as an additional to the class teacher the tape-recorder should be provided with a headset and located either in a corner of the room or preferably outside it in a corridor or empty room close by. The students then take turns to 'have ten minutes with the tape recorder' during other activities. The chief drawback of this procedure is that the tape must be rewound and reset for each student. The use of a continuous loop tape, or even of a cassette tape with identical material on each side, will obviate the problem.

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[1] Michael Dobbyn 'Tape-Recorder methods and materials' *Bulletin of the Central Institute of English*, Vol. 6, 1966-1967. Calcutta: Orient Longmans, pages 59-63.

9. TROUBLE SHOOTING

9.1. To Shoot or Not to Shoot?

Those happy monitors and recordists who have the services of a full-time, qualified technician need only call him to their aid when troubles come. He will put things right whether he was needed or whether, in fact, the monitor could have coped with the problem himself. The wise monitor will watch the repair being carried out and, in the course of time, learn what is within his powers to correct and what is not.

However, in many situations, even in the simple making of a master tape, problems arise and there is no technician available to come to the rescue. The immediate question is whether to try to trace and correct the fault, or to send the equipment to the nearest repair shop. The following chapter will not enable an unskilled person to do a difficult electrical repair. It will, however, try to tackle two questions: 'Which defects should the non-skilled refer to the technician?' and 'What can be done to remedy the others?'

By way of answering the first, we might note that in general, genuine *equipment problems* will need a technician's help to solve. On the other hand, the far more frequent *use/maintenance of equipment problems* will not.

9.2. Equipment Problems

A few examples may clarify the difference. If the tape-recorder displays complete inertia, if nothing lights up, no comforting hum is heard, and no spindles turn, the probable cause is a failure of the power supply. Having made sure that there is power in the outlet to which the machine is connected we should check the fuse in the tape-recorder itself—usually easily accessible. If that is intact, and the plugs and sockets carrying the power to the machine are also in order, then the chances are that we have a genuine equipment problem and a technician is needed.

Or, if there is unusual overheating of the machine and/or the spindles become stiffer and stiffer to turn by hand, then probably the motor is seizing up: a technician is needed.

Again, a tape-recorder may capriciously agree to play one track but not the another. It may play back but not record, or vice versa. There are a dozen possible causes for such a defect. All of them are potentially serious. Such symptoms, indicating genuine equipment problems, indicate the need for expert advice.

9.3. Use/Maintenance Problems

Equipment problems tend to materialize during attempts to record. Problems stemming from the way the equipment has been (mis)used are more likely to reveal themselves in the playback stage. Something will be missing, for example or unwantedly present. The foregoing distinction is a very general one. To tighten it up a little we may consider fourteen of the commonest defects noticed in playing back a tape. Naturally the actual *locus* of the trouble need not be in the playback stage. It may have occurred while recording. The first test is, therefore, to remove the tape and play it back again on a different tape-recorder to see if the trouble persists. If it does, then, in all probability, the damage was done while recording.

9.4. Fourteen Common Troubles

In each of the following sections we will note

(1) The symptoms
(2) The stage at which they were caused
(3) The action suggested to set the trouble right.

9.4.1. Background Hum

There is always some 'fifty-cycle hum', a medium-low pitched sound, in the background of tapes made or played on mains operated tape-recorders. If it is excessive then either at the record or playback stage, or at both, the apparatus was not properly grounded. A lead should be connected from the 'earth' or 'ground' terminal or from a metallic part of the chassis to a pipe or other metal object going eventually into the ground. Excessive hum, once recorded on a tape, cannot be removed. The tape must be re-recorded after grounding the tape-recorder.

A much lower, purring sound is usually caused by some piece of electrical equipment such as a fan, refrigerator, or air-conditioner operating nearby, or on the same power line, at either recording or playback stages. The piece of equipment must obviously be switched off, and rewired on a different line, or fitted with a suppressor.

9.4.2. Wrong Pitch of Voices

There are the easily recognizable 'birds in the trees' or 'lions in the jungle' effect when the original tape is played at either double or half the correct speed.

More disturbing, however, is the general feeling that the voices of the readers are slightly too high or too low. There are two possible causes. Both may operate at either record or playback stages.

(1) The tape-recorder used has a motor which is habitually runs a little above or below the correct speed. If this is the cause, a tape both made and played on the same (defective) machine will not show any abnormality. But a tape made on the machine in question and played on another, healthy machine will do so. Three machines in all will be needed to decide which one is running at the wrong speed. The rectification of the trouble is a technician's job.

(2) Either during recording or during playback there was a fluctuation in the mains voltage supply. Too high a voltage in recording may produce a lowered pitch in playback under normal conditions. Too high a voltage during playback will produce a raised pitch from a tape made under normal conditions. If the fluctuation occurs during recording there is nothing to be done. The tape must be recorded again. If it occurs during playback we need only to wait for the correct voltage to return, or adjust the incoming voltage with a variable transformer. Constant attention to the voltage, which can easily be measured with a cheap voltameter, will prevent trouples of this kind.

9.4.3. Extraneous Language-like Squawks

They probably are language,—unerased or partly erased words from a previous recording. If they are quite unintelligible they are probably remnants from a recording made at a different speed or with the tape moving in the opposite direction. The trouble occurs only at the recording stage. The passage must be re-recorded.

9.4.4. Faint Voices in the Background

If the voices are saying the same thing as the main tape, but, as it were, in a long-delayed echo, we probably have a case of 'print-through' analogous to the effect achieved by stacking written material which is too wet and leaves a faint image on the next sheet. This defect is commoner when the tapes are either of the very thin kind, or when they have been stored without use for a long time. Print through is thus a feature of neither the recording nor the playback stage, but rather of storage. It can often be removed entirely from the affected tape by running the tape once quickly through the machine set to 'fast forward'.

If the voices in the background are patently something quite different from the main taped matter then probably the previous recording was not entirely erased. This will usually be a matter of alignment of the heads—a matter for the technician.

If the voices are almost as loud as the original, but one of them is quite nonsensical in what it says, we are probably trying to play a quarter-track tape on a half track machine. We should really know better than that.

9.4.5. Mid-Word Pitch Drop

A sudden drop in pitch followed almost at once by a return to normal usually indicates a stretched tape. The stretching is effected some time after the original recording had been made and before it is played back. There is no remedy. The passage must be re-recorded, either in full, or in part and spliced in. A much boasted 'advantage' of the thinner, *mylar* tapes is that they do not break as easily as the older acetate ones. But we can easily splice a clean break: there is no way to shrink a tape that has stretched. Of course, we can minimize the number of such stretched passages by handling the tape more carefully. Specifically a tape should not be stopped in mind transit, fast forward or rewind, with a jerk. It should not be pulled through the tape deck unless the mechanism is set to allow the spools to revolve freely in the right direction, and so on.

9.4.6. Excessive Soft Clicks

In all but the best tape-recorders each time the 'stop' or 'run' (start) key is used, a slight click is recorded on the tape. In taping a particularly difficult portion of script the number of trials and errors may build up a sequence of these clicks which is disturbing. They cannot easily be erased. They can, however, be avoided by use of the 'pause' key whenever a simple 'stop', without rewinding, is required.

9.4.7. Numerous Loud Clicks

Almost certainly there is a loose connection at the recording stage, either in the microphone and its leads, or in the mains power lead to the tape-recorder. Both may be checked by a gentle movement with the fingers to see where the source of the trouble lies.

9.4.8. General Decline in Fidelity

When, for example, the distinctions between /f/ and /θ/, /s/ and /š/, and /w/ and /v/ become obscured and there is no apparent damage to the loudspeaker, there are two possibilities.

(1) Either the original recording, or the playback was carried out with the volume control set far too high. Distortion will result in either case. The passage should be re-recorded, at least in part for the sake of testing, with a careful eye on the level indicator.

(2) If there is still no improvement, tubes or transistors may be defective and need replacement. A technician should be consulted.

9.4.9. Sharp Fluctuations in Volume

For some reason the volume control of tape-recorders seems a weak point. After a few years of use it tends to short-circuit spasmodically. A confirmation that this is, indeed, the source of the trouble is that the fluctuations appear in rapid sequence as the volume control is slowly rotated. A replacement can be fitted by anyone handy with a small soldering iron. But otherwise a technician should be called in.

9.4.10. Barely Audible Recording

If the tape is still barely audible when tested on a second machine, the damage clearly took place in recording. Possibly the tape was inserted front to back. A fresh attempts at recording should be made, carefully keeping the dull (coated) side towards the heads. If it is again unsuccessful a technician should be called.

9.4.11. Audible but Incomprehensible

This is a variant on 9.4.10., above. The tape is probably threaded back to front. This, as a matter of fact, is quite a difficult thing to do. Moreover one must obtain a third, empty, spool in order to juggle the thing back the right way round onto its original spool. Some tape-recorders are now being made with a device which automatically reverses the direction of the tape when the end of the first side is reached. In order to do this, on a quarter track, stereo model, either the heads must be moved 'down' in relation to the tape like this:

From	To
Rt→	.
.	←Rt
Lt→	.
.	←Lt

and then a switching circuit brought into play which reverses rt. and lt. channels, or two separate sets of heads must be provided, one for left to right transport and one for right to left like this:

Rt→
←Lt
Lt→
←Rt

The two systems are not compatible. Language tapes made on one cannot be played on the other.

9.4.12. Hissing Noise

The head needs defluxing. See 7.6.3., above.

9.4.13. 'Drop-Out'

Brief silences in the middle of words and a sound in general spotty where it should be smooth is either the result of old tape, or of dirty heads in record or playback stages. Head cleaning has been described in 7.6.2., above. Old tape should be discarded.

9.4.14. Tinny and Muddy Sounding Recordings

If trial on a second player produces the same effect, the tape has probably been recorded on one of the few tape recorders possessing a tone control on the input and this control was wrongly set. Re-record. If, however, on a second tape recorder of the same model the tape is acceptable, then either the speaker or the tone controls of the first player are damaged. This is a technician's business.

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10. SOURCES OF FURTHER INFORMATION

10.1. Some Basic Readings

10.1.1. For a general review of the experimental evidence concerning the effectiveness of language laboratories, see:

Rivers, W. *Teaching Foreign Language Skills.* Chicago: University of Chicago Press, 1968. Pages 355 and following.

10.1.2. Language Laboratory Hardware, Software and Methods

Gravit, F. and A. Valdman, (ed.) *Structural Drill and the Language Laboratory: Report of the Third Language Laboratory Conference held at Indiana University, March 1962.* (Publication 27 of the Indiana University Research Center in Anthropology, Folklore and Linguistics) Bloomington, Ind: Indiana University Press, 1963.

Hilton, J. B. *The Language Laboratory in School.* New York: Methuen, 1964.

Hayes, A. S. *Language Laboratory Facilities: Technical Guide for the Selection, Purchase, Use and Maintenance* OE-21024. Bulletin No. 37. Washington, D.C.: U.S. Government Printing Office, 1963.

Hocking, E. *Language Laboratory and Language Learning.* Washington, D.C.: National Education Association, Dept. of Audiovisual Instruction, 1964.

Morton, F. R. *The Language Laboratory as a Teaching Machine.* Michigan: Publications of the Language Laboratory, University of Michigan, 1960.

National Committee for Audio-Visual Aids in Education. *Audio-Visual Aids and Modern Language Teaching.* London: NCAVE, 1962.

Najam, E. W. (ed.) *Materials and Techniques for the Language Laboratory: Report of the Second Language Laboratory Conference held at Purdue University, March*

1961. (Publication 18 of the Indiana University Research Center in Anthropology, Folklore, and Linguistics) Bloomington, Indiana: Indiana University Press, 1962.

Stack, E. M. *The Language Laboratory.* New York: Oxford University Press, 1960.

Turner, J. D. (ed.) *Introduction to the Language Laboratory.* London: University of London Press, 1955.

— *Language Laboratories in Great Britain.* London: University of London Press, 1965.

— (ed.) *Programming for the Language Laboratory.* London: University of London Press, 1969.

10.2. Articles

There has been a wealth of articles, mostly on the practical side, about Language Laboratory Methods and Materials during the last ten years. In the last three years interest has turned towards comparative studies (e.g. with-laboratory/without-laboratory, Method A/Method B, or Installation type X/Installation type Y).

Most of the articles have appeared in a limited number of professional periodicals such as:

English Language Teaching. (London: Oxford University Press).

International Review of Applied Linguistics. (Heidelberg: Julius Gross).

Language Learning. (Michigan, U.S.A.: University of Michigan Press, Ann Arbor).

Modern Language Journal. (St Louis, Miss U.S.A.: Modern Language Association).

Selections from all of these and many others are conveniently abstracted, classified, and indexed in

Language Teaching Abstracts. (Quarterly: Cambridge, U.K.: Cambridge University Press).

10.3. Further Reading

More references, up to 1966 at least, (from which date *Language Teaching Abstracts* gives full coverage) can be found in a fuller bibliography in the 1967 issue of the *Bulletin of the Central Institute of English*, No. 6, (1966-1967), Calcutta, Orient Longmans, pages 64-70.

10.4. Non-Profit Information Sources Overseas

In the U.S.A., Department of Audio Visual Instruction, National Education Association, Washington, D.C.

In the U.K., National Committee for Audio-Visual Aids in Education, Equipment and Materials Department, 254 Belsize Road, London, N.W. 6.

APPENDIX I: SAMPLE MATERIALS

I.I. Script Outline for a Pronuciation Lesson

Object: Student should develop aural discrimination and oral production of the contrast between /t/ and /θ/.

Script Outline

0. *Tape identification and Statement of purpose*

1. *Statement of the problem*
1.1. Examples of common errors
1.2. Correct models of minimal pairs

2. *Ear training*
2.1. Pairs with identification
2.2. Triplets for identification
2.3. Single items for identification
2.4. 'New' words for identification

3. *Production of /θ/*
3.1. Articulatory description
3.2. Mimicry drills for /θ/

4. *Production of /t/*
4.1. Articulatory description
4.2. Mimicry drills for /t/

5. *Test*
5.1. Mixed /θ/ and /t/ items for discrimination and production: items already encountered
5.2. : new items

6. *Tape identification*

I.I.I. Basic Materials for a Pronunciation Lesson (/t/ and /θ/)

1. *Common substitutions*

Thanks-tanks. Nothing-nutting. Path-part.

2. *Minimal pairs* (For familiarization)

The three climbers looked for the fourth.
The tree-climbers looked for the fort.

Initial

Thinker-tinker Thick-tick Thigh-tie
Thrill-trill Thin-tin Through-true

Medial

Pithy-pity Ether-eater Pathway-part-way
Dearth and hunger—Dirt and hunger
The best themes—The best teams

Finally

Fourth-fort Tenth-tent Hearth-heart
Teeth-teat Sheath-sheet

3. *New Words for identification and mimicry*

Thorn-torn
Both houses-boathouses
North-naught
Thread-tread

Unthought-untaught
Thin-tin
Thorn-torn

Remedial Course: 8
Serial Number: 225

I.III Sample Script (Portions omitted) of Pronunciation Lesson

Script is based on *Script Outline* and *Basic Materials* on preceding pages.

Script

0. Tape identification

M1 Start Two
(Pause 5 seconds)
Lesson number 225. Discrimination and production of /t/ and /θ/. Produced at the . . . Institute.
(Pause 2 seconds)
Start One
(Pause 5 seconds)
Remedial Pronunciation Course: Lesson 8. 'Theta' and 'Tee'
Produced at the . . . Institute.
(Pause 2 seconds)

1. Statement of problem

There are two parts to this lesson. The purpose of the first part is to train your ears to hear the difference between /θ/ and /t/. The second part will help you make the two sounds. We will call them /θ/ 'Theta' and /t/ 'Tee'.

P (Pause 3 seconds)

1.1 Examples of errors

M1 Many people confuse theta and tee. Instead of THANK, *thank* they say

M2 *tank*, TANK

M1 Instead of PATH, *path* they say

M2 *part*, PART

M1 Instead of *nothing*, with theta, they say

M2 *nutting* with tee

1.2 Examples of minimal pairs

M1 In English the difference is important.
Listen

M2 The three climbers looked for the fourth

M1 This could mean that John, James, and Harry, who were climbing the hill, looked for their friend, Peter (Pause 3 seconds) Now listen.

M2 The tree climbers looked for the fort

2. Ear-training

M1 Now John, James, and Harry are up in the branches. They are looking for the place where soldiers live. (Pause 3 seconds) Listen to the following pairs of words. The first word always begins with theta.
The second begins with tee.

2.1 Pairs with identification

M2 Thinker, tinker (P) Thanks, tanks (P)
Thick, tick (P) Thigh, tie (P)

M1 Now with the theta or tee in the middle

M2 Pathway, part-way (P) Pithy, pity (P)
Ether, eater (P)

M1 Now at the end

M2 Fourth, fort (P) Tenth, tent (P) Hearth, heart (P) Teeth, teat (P) Sheath, sheet (P)

2.2 Triplets for identification of third item

M1 In the following examples the first word contains theta and the second word contains tee. Then one of the two will be repeated. Say whether the theta word was repeated or the tee word was repeated. Join in as soon as your understand.

M2 Thinker: tinker. tinker

M1 (Pause 3 seconds) Tee
M2 Thanks: tanks. tanks

M1 (Pause 3 seconds) Tee
M2 Thick: tick. thick

M1 (Pause 3 seconds) Theta
M2 Thigh: tie. thigh

M1 (Pause 3 seconds) Theta
M2 Thrill: trill. trill

M1 (Pause 3 seconds) Tee
M2 Ether: eater. eater . . . (Drill continues)

2.3 Single items for identification

M1 Now you will hear some single words. Say whether they contain theta or tee.

M2 Tinker

M1 (Pause 3 seconds) Tee
M2 Thanks

M1 (Pause 3 seconds) Tee
M2 Thick

M1 (Pause 3 seconds) Theta
M2 Thigh

M1 (Pause 3 seconds) Theta
M2 Thrill

M1 (Pause 3 seconds) Theta . . . (Drill continues)

2.4 'New' Words for identification

M1 Now some new words. Say if they contain theta or tee.
M2 Thorn. Thorn.

M1 (Pause 3 seconds) Theta
M2 Untaught. Untaught

M1 (Pause 2 seconds) Tee
M2 Lath. Lath

M1 (Pause 2 seconds) Theta
M2 Boathouses. Boathouses.

M1 (Pause 2 seconds) Tee
M2 Thin. Thin

5.1 Mixed items for discrimination and production

M2 Thinker (P=) Tinker (P=) Tanks (P=) Thanks (P=)
Tick (P=) Tie (P=) Trill (P=) Ether (P=)
Pathway (P=) Pity (P=) Dearth (P=) Theme (P=)
Fort (P=) Tenth (P=) Hearth (P=) Teat (P=)
Sheath (P=) Thick (P=) Thigh (P=) Thrill (P=)
Partway (P=) Pity (P=) Dirt (P=) Team (P=)
Fourth (P=) Tent (P=) Heart (P=) Teeth (P=)
Sheet (P=)

5.2 New Items

M1 Here are some words which did not appear in the pairs earlier on. First decide if they contain theta, or tee. Then say them.
Begin now.

M2 Thread (P=) Torn (P=) Tinsmith (P=) Through (P=)
Both houses (P=) in threes (P=) naught (P=)
Wrath (P=) Thread (P=) Thorn (P=) True (P=)
Third (P=) in trees (P=) North (P=) Rot (P=)
(Pause five seconds)

6. Tape identification

M1 Finish one
That is the end of Lesson Eight in the Remedial Pronunciation Course.

PX5 (Pause 5 seconds)
Lesson 225. Finish Two.

I.IV. Script Outline for a Structure Lesson

Object: Student should be able to discriminate between and produce the patterns
'If he had come he would have seen me'
'If he had come he wouldn't have missed me'

Script Outline

0. Tape identification and statement of content

1. Introduction and integration with lesson 32

2. Review of previous pattern

(IF HE HAD EATEN BREAKFAST HE WOULD HAVE FELT FULL)

2.1 Context setting: Story; 'Kamala and Hafizullah'
2.2 Drills on context (Basic Materials: Ex. 1)

M1 (Pause 2 seconds) Theta
(Pause 5 seconds)
That is the end of the first part of this lesson. You should repeat this first part until you make no mistakes. Then go on to the second part.

3. Production of /θ/

3.1 Articulatory description of /θ/

M1 Part Two, production of /θ/ theta
(Pause 3 seconds)
To pronounce theta put the tip of your tongue against your upper teeth and blow. /θ/, /θ/, /θ/ . Put your tongue against your upper teeth and blow.
(Pause 3 seconds)
Repeat the following words. They all contain theta. None of them contains tee. You will hear each word three times.
Begin now.

M2	Thinker	(P=)	Thinker	(P=)	Thinker	(P=)
	Thanks	(P=)	Thanks	(P=)	Thanks	(P=)
	Thick	(P=)	Thick	(P=)	Thick	(P=)
	Thigh	(P=)	Thigh	(P=)	Thigh	(P=)
	Thrill	(P=)	Thrill	(P=)	Thrill	(P=) , . [Drill continues]

4. Production of /t/

4.1 Articulatory description of /t/

To pronounce tee keep your tongue well back from the teeth and do not blow until you have released it. /t/, /t/, /t/. Keep your tongue well back from teeth and do not blow until you have released it.
Repeat the following words. They all contain tee.

4.2 Mimicry drills for /t/

M2	Tinker	(P=)	Tinker	(P=)	Tinker	(P=)
	Tanks	(P=)	Tanks	(P=)	Tanks	(P=)
	Eater	(P=)	Eater	(P=)	Eater . . . [Drill continues]	

5.

M1 (Pause 5 seconds)
Repeat the following examples. Some contain theta.
Some contain tee. Some contain both. You will hear each item once only.
Begin now.

2.2.1 Mimicry drill
2.2.2 Completion drill
2.2.3 Production drill

3. Introduction of new pattern

(IF HE HAD EATEN BREAKFAST HE WOULD NOT HAVE FELT EMPTY)

3.1 Same context as above:
3.2 Drills on context (Basic Materials: Ex. 2)
3.2.1 Mimicry drill
3.2.2 Completion drill
3.3.3 Production drill

4. Overlearning drills on new pattern

4.1 New Context: (Story: 'Ramu in Trouble')
4.2 Drills on context (Ex. 3)
4.2.1 Mimicry drill
4.2.2 Completion drill
4.2.3 Production drill

5. Discrimination between old and new patterns

5.1 Drills based on above contexts (Ex. 4a)
5.2 Drills based on context of general knowledge (Ex. 4b)

6. Test of Discrimination and Production skills

6.1 Ten items (Ex. 5)

7. Tape identification

I.V. Basic Materials for a Structure Lesson (Conditionals)

Kamala and Hafizullah

One evening Kamala and Hafizullah decided that the next morning they would go to a village about three miles from the town where they lived. They each asked Mr Chatterjee the way to get there. Mr Chatterjee spoke only Bengali and Hafizullah didn't understand the directions very well. He soon forgot even the little that he had understood. However, he thought he knew the way and next morning he rushed off before breakfast without even remembering to put on his sandals for the long, stony road.

Kamala understood Bengali, but even so she asked a few other people about the journey, just to make sure. Before she left she ate breakfast, drank some hot tea, and put on her sandals.

Very soon the rain started to pour down and Kamala had to shelter under a big tree until it passed. She reached her destination a little late but quite comfortable and happy.

Poor old Hafizullah: He forgot the directions and lost his way. The rain came and he found no shelter. So he had to go on walking through it. He soon began to feel cold and empty. He tried to find his way back home, but he didn't know North from South. His feet were bruised and wet and chilled. When finally he got back he had caught a cold.

Exercise 1

1. She spoke Bengali so she understood Mr Chatterjee
   If he had spoken Bengali he would have understood Mr Chatterjee
2. She asked questions so she received directions
   If he had asked questions he would have received directions
3. She remembered directions so she found the village
   If he had remembered directions he would have found the village
4. She ate breakfast so she felt full
   If he had eaten breakfast he would have felt full
5. She drank tea so she felt warm
   If he had drunk tea he would have felt warm

Exercise 2

1. He ate no breakfast so he felt empty
   If he had eaten breakfast he wouldn't have felt empty
2. He drank no tea so he felt cold
   If he had drunk tea he wouldn't have felt cold
3. He wore no sandals so he caught a cold
   If he had worn sandals he wouldn't have caught a cold
4. He found no shelter so he walked in the rain
   If he had found shelter he wouldn't have walked in the rain
5. He knew no Geography so he lost his way home
   If he had known Geography he wouldn't have lost his way home.

Ramu in Trouble

Hafizullah is not the only boy who has his troubles. Ramu has a daily problem. He never seems to have done his homework.

On Tuesday night, for example, Ramu came in too late to do the work he had been assigned. So, on Wednesday morning he had to get up early and do it before school. He wasn't able to finish it, and he set off for school still reading.

Of course he didn't notice the steps near the Post Office. He was so busy reading that he tripped over them. His book flew through the air and he fell down. He hurried on rubbing his knees and quite forgetting his book.

In school he failed the test and had to stay behind after the class had finished. He knew his father would ask him why he came back home late. He stayed away until it was dark. Then he slipped quietly into bed.

In this way he had, once more, not done his homework. The next morning the same sad story could be told.

Exercise 3

1. Ramu studied his homework this morning. He didn't study it last night.
   If he had studied it last night he wouldn't have studied it this morning.
2. Ramu studied it on the way to school. He didn't finish it at home.
   If he had finished it at home he wouldn't have studied it on the way to school.
3. Ramu fell down. He didn't notice the step.
   If he had noticed the step he wouldn't have fallen down.
4. Ramu lost his book. He didn't pick it up.
   If he had picked it up he wouldn't have lost his book.
5. Ramu failed the test. He didn't know the answers.
   If he had known the answers he wouldn't have failed the test.
6. Ramu stayed when the others left. He didn't pass the test.
   If he had passed the test he wouldn't have stayed when the others left.
7. Ramu came home late. He didn't leave with the others.
   If he had left with the others he wouldn't have come home late.
8. Ramu avoided his father. He didn't come home on time.
   If he had come home on time he wouldn't have avoided his father.

9. Ramu stayed out very late. He didn't know what to tell his father.

   If he bad known what to tell his father he wouldn't have stayed out very late.

10. Ramu forgot his homework again. He didn't remember to do it.

    If he had remembered to do it he wouldn't have forgotten his homework again.

Exercise 4a

1. FEEL FULL . . . If he had eaten breakfast

   If he had eaten breakfast he would have felt full.

2. FEEL EMPTY . . . If he had eaten breakfast

   If he had eaten breakfast he wouldn't have felt empty.

3. CATCH A COLD . . . If he had worn sandals

   If he had worn sandals he wouldn't have caught a cold.

4. FEEL WARM . . . If he had drunk tea

   If he had drunk tea he would have felt warm.

5. UNDERSTAND MR CHATTERJEE . . . If he had spoken Bengali

   If he had spoken Bengali he would have understood Mr Chatterjee.

Exercise 4b

1. Charles Dickens never saw the Taj Mahal. He didn't visit Agra. If he had visited Agra.

   If he had visited Agra he would have seen the Taj Mahal.

2. Thackeray saw Bombay. He didn't stop in Calcutta.

   If he had stopped in Calcutta

   If he had stopped in Calcutta he wouldn't have seen Bombay.

3. Rabindranath Tagore ate mangoes. He didn't live in England.

   If he had lived in England.

   If he had lived in England he wouldn't have eaten mangoes.

4. Shakespeare didn't know Dickens. He didn't live in the right century. If he had lived in the right century.

   If he had lived in the right century he would have known Dickens.

5. Shakespeare admired Akbar. He didn't admire cowards.
   If he had admired cowards.
   If he had admired cowards he wouldn't have admired Akbar.

Exercise 5

1. The postman didn't stop at our door because he hadn't brought any letters.
   If he had brought letters he would have stopped at your door.
2. He walked past our door because he hadn't brought any letters.
   If he had brought letters he wouldn't have walked past our door.
3. Then he turned back because he hadn't delivered the parcel.
   If he had delivered the parcel he wouldn't have turned back.
4. He didn't deliver it earlier because he hadn't remembered it.
   If he had remembered it he would have delivered it earlier.
5. He knocked on the door because he didn't see the bell.
   If he had seen the bell he wouldn't have knocked on the door.
6. He didn't wait because he didn't have time.
   If he had had time he would have waited.
7. He left the parcel on the step because he didn't open the door.
   If he had opened the door he wouldn't have left the parcel on the step.
8. He didn't know we were in because he didn't see grandfather.
   If he had seen grandfather he would have known we were in.
9. He didn't see grandfather because he was not tall enough.
   If he had been tall enough he would have seen grandfather.
10. He missed grandfather because he was not tall enough.
    If he had been tall enough he wouldn't have missed grandfather.

Advanced Course: 33
Serial Number 148

I. VI. Sample Portion of Script (Skeleton Only) of Structure Lesson

Script

0.

M1 Start Two
(Pause 5 seconds)
Lesson number 148. Conditional sentences type six.
Produced at the . . . Institute.
(Pause 2 seconds)
Start One
(Pause 5 seconds)
Advanced Course Lesson 33. Conditional sentences part six. Produced at the . . . Institute.
(Pause 2 seconds)

1.

This is another lesson about sentences like
M2 If he had run he would have caught the bus
M1 But this time the pattern is a little harder.
Listen. Do not repeat
M2 If he had run he wouldn't have missed the bus
M1 Here is the old pattern again. Listen. Do not repeat
M2 If he had run he would have caught the bus
If he had caught the bus he would have arrived in time
If he had arrived in time he would have pleased his friends
M1 Here is the new pattern. Listen. Do not repeat
M2 If he had run he wouldn't have missed the bus
If he had caught the bus he wouldn't have arrived late
If he had arrived in time he wouldn't have annoyed his friends

2.

M1 Before the drills, here is a simple story. Listen.
Try to remember what happens to the two people in it.

2.1

M2 One evening Kamala and Hafizullah decided that the next morning they would go to a village . . . When finally he got back he had caught a cold.

2.2

M1 First we will review the old pattern. You will hear pairs of sentences about Kamala and Hafizullah.
Repeat the second sentence—the one about Hafizullah.
Repeat only the second sentence.

2.2.1

M2 She spoke Bengali so she understood Mr Chatterjee

M1 If he had spoken Bengali he would have understood Mr Chatterjee

SR (If he had spoken Bengali he would have understood Mr Chatterjee)

M2 She asked questions so she received directions

M1 If he had asked questions he would have received directions

SR (If he had asked questions he would have received directions)

M2 She remembered directions . . .

SR (If he had drunk tea he would have felt warm)

2.2.2

M1 Here are the same pairs once again. This time the second sentence will be incomplete. You are to complete it. Here is an example.

M2 She spoke Bengali so she understood Mr Chatterjee.
If he had spoken Bengali

M3 He would have understood Mr Chatterjee

M1 Begin now

M2 She asked questions so she received directions.
If he had asked questions

SR (He would have received directions)

M2 He would have received directions

M1 She remembered directions so she found the village. If he had remembered directions

SR (He would have found the village)

M2 He would have found the village

2.2.3

M1 Now you will hear only the first sentence of each pair. You will say the second. Here is an example

M2 She drank tea so she felt warm

M3 If he had drunk tea he would have felt warm

M1	Begin please
M2	She spoke Bengali so she understood Mr Chatterjee
SR	(If he had spoken Bengali he would have understood Mr Chatterjee)
M1	If he had spoken Bengali he would have understood Mr Chatterjee

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The first set of papers deal with Negation in eleven Indian languages. They provide valuable data which may be profitably used at a later stage for arriving at generalisations about universals of Indian languages on a regional basis. The second set of papers were presented by the registrants. These range from the study of historical inscriptions to dialectal studies.

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